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The Effects of Procedural Justice on Cooperation and Compliance among Inmates in a Work Release Program

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ABSTRACT

Order is critical to the safe and efficient management of correctional institutions. Procedural justice theory suggests that the fair and rightful exercise of authority by correctional staff can promote order by stimulating within inmates a sense of obligation to obey authority. Triggering this sense of obligation is thought to encourage voluntary cooperation and compliance without relying on formal sanctions. Using data from a 2006 survey of 213 adult male inmates in a Chicago transition facility (a minimum security prison), we test the effects of procedural justice and other factors on cooperation and compliance. The results reveal that inmates' perceptions of procedural justice have a mix of direct and indirect effects on their cooperation and compliance. Our findings clarify the role of procedural justice and other factors in maintaining order within correctional settings. Supplementary analyses clarify the effects of anger on cooperation and compliance and provide fruitful avenues for future research.

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Procedural justice; prison; inmates; cooperation; compliance

Introduction

Order is critical for the safe and efficient management of correctional institutions. Correctional officials rely on the cooperation and compliance of inmates to maintain a safe and orderly environment (Dilulio, 1987; Jackson, Tyler, Bradford, Taylor, & Shiner, 2010). Administrators have a variety of methods at their disposal for maintaining order, including formal grievance procedures, official disciplinary action, segregation of disruptive prisoners, and use of force, as well as formal and informal rewards for well-behaved prisoners (Dilulio, 1987). These approaches to order-maintenance are based on establishing systems of behavioral incentives and disincentives for inmates. However, in their seminal ethnographic study of order in prisons, Sparks, Bottoms, and Hay (1996) argue that such approaches are insufficient mechanisms for maintaining order. As noted by Bottoms (1999), "to many prisoners, the incentives or disincentives (rewards and punishments) that the prison system offers have little real meaning" (p. 210).

Instead, normative approaches, which are premised on the fair and rightful exercise of authority, may be more effective at promoting order in prisons. Normative approaches

emphasize the importance of routine, day-to-day behaviors by correctional staff, such as treating inmates fairly and humanely and explaining decisions. Fair treatment is thought to enhance the perceived legitimacy of correctional authorities among inmates, which in turn promotes voluntary cooperation and compliance (Bottoms, 1999). Research suggests that fair treatment may be a more robust predictor of orderly behavior and compliance in prisons than coercive approaches (Liebling, 2004, 2011; Sparks et al., 1996). According to Sparks et al. (1996), correctional staff who are amicable, establish professional working relationships with inmates, and embrace procedurally just treatment of offenders can improve inmate perceptions of staff and stimulate voluntary cooperation and compliance. Establishing an atmosphere that encourages prosocial behavior among inmates is an important part of creating a safe environment for staff and inmates. This approach is thought to be more efficient and effective than other approaches that rely primarily on the threat of sanctions to induce compliance (Goetting & Howsen, 1986).

Correctional officials cannot maintain order unless most inmates cooperate and comply voluntarily (Beijersbergen, Dirkzwager, Eichelsheim, Van der Laan, & Nieuwbeerta, 2015; Beijersbergen, Dirkzwager, & Nieuwbeerta, 2016; Sparks & Bottoms, 1995; Sykes, 2007). A normative approach to order suggests that an important part of maintaining order in prisons is for correctional officials to adopt long-term strategies that contribute to the development of an internalized sense of obligation to obey among inmates. The use of sanctions, while necessary in some instances, is not a sufficient long-term solution for maintaining order because it represents an externally imposed form of control (Sparks et al., 1996). Instead, normative approaches that promote procedural justice among correctional staff and an internalized sense of obligation to obey among inmates may be more successful in inculcating inmate cooperation and compliance in prisons (Franke, Bierie, & MacKenzie, 2010). Moreover, if correctional officials want inmates to become productive members of society upon release, treating them in a procedurally just manner may help to reduce the defiance, anger, and rebellion that has been shown to trigger recidivism once inmates are released (Beijersbergen et al., 2015, 2016; Sherman, 1993; Tyler, 2010).

The present study tests the effects of procedural justice and three alternative explanations—distributive justice, institutional performance, and risk of sanctions—on compliance and cooperation within a prison environment. We test the direct effects of these factors on cooperation and compliance, as well as their indirect effects through inmates' sense of obligation to obey correctional authorities. In supplemental analyses, we also draw on recent scholarship to examine the mediating effects of anger. Our analysis is based on data from a sample of inmates housed at an adult male transition facility in Chicago. The findings are useful for clarifying the role of procedural justice and other key factors in promoting order in correctional facilities.

Literature review

Since Thibaut and Walker's (1975) landmark study of procedural justice more than four decades ago, a substantial body of research has confirmed its effects on a variety of key outcomes, including people's decisions about whether to obey the law or cooperate with legal authorities (Leventhal, 1980; Tyler, 2006; Tyler & Huo, 2002; Tyler &

Folger, 1980). Thibaut and Walker (1975) proposed a theory of procedural justice that focused largely on process control. According to their perspective, individuals are more likely to perceive treatment as just when they have control over the decision and/or process used to arrive at the decision.

While crediting Thibaut and Walker for laying the foundation for the study of procedural justice, Lind and Tyler (1998) criticize Thibaut and Walker's (1975) theory for evaluating procedures "in terms of the outcomes they produce" (p. 39). Instead, Lind and Tyler (1998) argue for a group-value perspective on procedural justice in which people judge the fairness of procedures based on relational criteria such as status recognition, neutrality, and trust in authorities. Tyler and his colleagues argue that people's perceptions of procedural justice during encounters with authority figures are rooted in two types of evaluations: the quality of interpersonal treatment and the quality of decision-making. Quality of treatment is concerned with the nature of the interpersonal interactions between an authority figure and a subordinate. During such interactions, subordinates form judgments about the extent to which authority figures treat them fairly, respectfully, and politely (Reisig, Tankebe & Meško, 2014; Tyler, 2006).

Quality of decision-making is concerned with people's judgments about the extent to which authority figures rely on fair and neutral decision-making procedures. For subordinates, this often means having an opportunity to voice their concerns. According to Tyler (2006), "people have a tremendous desire to present their side of the story and value the opportunity in and of itself" (p. 147) regardless of whether it influences the ensuing decision. Merely providing subordinates with the opportunity to state their case is not sufficient. People need to believe that what they say is being taken into account as part of the decision-making process (Tyler, 1987, 2006). For subordinates, fair decision-making is also neutral and unbiased. This is especially important in a correctional setting, where repeated interactions enable inmates to make routine judgments about whether officials base decisions on clearly established standards and rules and apply these decision frameworks similarly across people and time.

The judgments people make about quality of treatment and decision-making (procedural justice) are thought to be separate from their judgments about the fairness or favorability of outcomes (distributive justice) (Sunshine & Tyler, 2003; Tyler, 2006; Tyler & Huo, 2002). Distributive justice theory suggests that when people perceive the outcomes they receive as just—such as a fair distribution of benefits, services, or sanctions—they will be more likely to support, cooperate with, or comply with the authorities issuing those outcomes (Sarat, 1977; Tyler, 2006). Hacin and Meško (2018) conducted qualitative interviews with 193 prisoners in Slovenia to explore the effects of prisoners' perceptions of procedural and distributive justice on perceptions of prison staff legitimacy. The authors concluded that perceptions of both procedural and distributive justice influenced the extent to which Slovenian prisoners comply with prison authorities. Estimates of the effects of distributive justice in other criminal justice settings (e.g., police-citizen encounters and court proceedings) are mixed. Some early studies found that outcome fairness influenced citizens' evaluations of authority figures (Baker, Meyers, Corbette, & Rudoni, 1979; Tyler, 1984; Tyler & Folger, 1980). Other studies found that distributive justice did not have a significant effect on

attitudes toward legal authorities (Casper, Tyler, & Fisher, 1988; Tyler, Casper, & Fisher, 1989).

Tyler's process-based model of regulation suggests that people's procedural justice judgments play a stronger role than their distributive justice judgments in shaping their internalized sense of obligation to obey the law and legal authorities. In the process-based model, obligation to obey serves as a mediator between procedural justice judgments and key behavioral outcomes like cooperation and compliance. Procedurally just treatment is thought to enhance people's internalized sense of obligation to obey, which in turn encourages cooperation and compliance.¹ Research has shown that procedural justice also has *direct* effects on behavioral outcomes in addition to its *indirect* effects through obligation (Pryce, Johnson, & Maguire, 2017; Šifrer, Meško, & Bren, 2015).

The effects of procedural justice are typically contrasted not only with distributive justice, but also with two other "instrumental" considerations: institutional performance and risk of sanctions.² According to Sunshine and Tyler (2003), the instrumental perspective (as applied to police) suggests that "the police gain acceptance when they are viewed by the public as (1) creating credible sanctioning threats for those who break rules (risk), (2) effectively controlling crime and criminal behavior (performance), and (3) fairly distributing police services across people and communities (distributive fairness)" (p. 514). Institutional performance is concerned with people's assessments about whether an institution is effective in performing its duties. People are more likely to cooperate or comply with an institution that is perceived as effective (Pryce et al., 2017; Tankebe, 2009). Weak performance may signal to subordinates that an institution is not serious or credible in pursuing its mission and therefore not worthy of cooperation or compliance. This issue is particularly salient in correctional settings, in which inmates come face to face with the competence of the institution and its agents on a daily basis.

Risk of sanctions refers to the perceived risk of being caught and punished for violating laws or rules. Those who perceive the risk of sanctions as high may be more likely to cooperate or comply with the law and legal authorities. The perceptual deterrence literature provides a theoretical basis for expecting a relationship between perceived risk of sanctions and compliance (Nagin, 1998; Williams & Hawkins, 1986).

¹In much of the research, obligation to obey is treated as a component of institutional legitimacy (Sunshine & Tyler, 2003; Tyler, 2006). However, recent scholarship has challenged the meaning and measurement of legitimacy (Bottoms & Tankebe, 2013; Gau, 2014; Johnson, Maguire, & Kuhns, 2014; Tankebe, 2013). In Tankebe's (2013) model, obligation is conceptualized as a downstream consequence of legitimacy rather than a constituent component. Here, we do not take a position on this debate; we treat obligation to obey as a standalone concept, not as a proxy for institutional legitimacy.

²Scholars disagree about whether it is appropriate to refer to some of these factors as "instrumental" considerations. According to Sunshine and Tyler (2003), the instrumental perspective suggests that authority figures gain acceptance when they are viewed by those who are subordinate to their authority as imposing a credible risk of punishment for rule violations (risk of sanctions), performing well at achieving their core goals (institutional performance), and allocating services fairly (distributive justice). In other studies, Tyler refers to distributive justice as normative (Tyler & Fagan, 2008). Tankebe (2013) conceptualizes distributive justice and institutional performance as normative rather than instrumental. When focusing on outcome favorability alone, distributive justice can be thought of as an instrumental consideration; however, when focusing on fairness in the allocation of outcomes, it can also be viewed as normative (Cropanzano & Ambrose, 2001). Similarly, though institutional performance is typically conceptualized in instrumental terms, Tankebe (2013) notes that it emerges "from the idea of shared values" (p. 112), and therefore, it fulfills a normative condition for legitimacy.

Research on perceptual deterrence finds an inverse, albeit weak to modest, relationship between perceived risk of apprehension and criminal behavior (Paternoster & Piquero, 1995; Pratt, Cullen, Belvins, Daigle, & Madensen, 2009; Williams & Hawkins, 1986). Although Sunshine and Tyler (2003) find that perceived risk of sanctions is associated with compliance, its effects are weaker than those of procedural justice. Perceived risk of sanctions is the prototypical utilitarian explanation for why people obey the law and legal authorities.

The effects of the three explanatory factors we have just discussed—distributive justice, institutional performance, and risk of sanctions—are often contrasted with the effects of procedural justice. In general, studies find that people's decisions about whether to cooperate or comply with the law and legal authorities tend to be influenced more heavily by perceptions of procedural justice than by these competing explanations (Bradford, 2014; Sargeant, Murphy, & Cherney, 2014; Sunshine & Tyler, 2003; Tankebe, 2009; Tyler & Fagan, 2008).

The effects of procedural justice in a correctional setting

Most of the research on procedural justice in criminal justice settings has focused on police and courts. Less empirical research exists on procedural justice in institutional correctional settings (Beijersbergen et al., 2015, 2016; Bieri, 2012; Brunton-Smith & McCarthy, 2016; Hacin & Meško, 2018; Henderson et al., 2010; Reisig & Meško, 2009). This is an important gap in the literature for a number of reasons. For instance, inmates may be predisposed to view procedural justice in ways that differ from the general public. Tyler (2006) notes that people define procedural justice based on a combination of their prior interactions with authorities and on the situational context of the current interaction. Inmates are more likely than members of the general public to have experienced repeated contact with criminal justice authorities. These contacts, coupled with their current imprisonment, are likely to have a profound influence on inmates' procedural justice perceptions. Casper (1972, 1978), for example, found that felony defendants with a prior record were more likely to perceive unfair treatment and to base their evaluations of authorities on the perceived consistency of treatment than felony defendants with no prior record. Casper (1978) concluded that defendants' predispositions "do appear to make a difference in their evaluations of fairness" (p. 242), but these preexisting beliefs are not decisive; the characteristics of recent encounters are also important.

Individual-level characteristics that are common among prison inmates may also play a role. For instance, it is well established that low self-control is associated with offending and contact with the criminal justice system (Beaver, DeLisi, Mears, & Stewart, 2009; Pratt & Cullen, 2000). In an intriguing analysis, Piquero, Gomez-Smith, and Langton (2004) found that people with low self-control are more likely to view sanctions as unfair. They also found that "unfair sanctions and low self-control lead to perceived anger for being singled out for punishment and that self-control conditions the effect of unfair sanction perceptions on perceived anger" (Piquero, Gomez-Smith, & Langton, 2004, p. 699). Recent research shows that anger has a significant influence on procedural justice judgments among inmates (Beijersbergen et al., 2015, 2016).

Finally, a small body of research from psychology demonstrates that prisoners who “believe in a just world” are more likely to view their own experiences with the criminal justice system as just (Dalbert & Filke, 2007; Otto & Dalbert, 2005). To the extent that prisons house a clientele with a more pessimistic perspective on whether the world is just, prisoners may be predisposed to perceive injustice. Thus, a number of individual-level characteristics of prison inmates may result in justice-related judgments that are unique relative to those of the general public.

The situational context of a prison is also vastly different from a street or courtroom. Unlike individuals in the general public who may have limited knowledge regarding others’ encounters with the police and courts, the small confines of prison may result in prisoners having more detailed knowledge of interactions between other prisoners and correctional officials (Hacin & Meško, 2018; Sykes, 2007). This knowledge is important for two reasons. First, it provides a ready source of comparison for their own judgments about procedural (and distributive) justice. Second, it means that these perceptions may be much more salient in the day-to-day lives of inmates.

Although procedural justice issues loom large in correctional settings, we are only aware of two quantitative empirical studies that have examined the effects of inmate perceptions of procedural justice on prisoner misconduct (Beijersbergen et al., 2015; Reisig and Meško, 2009). Both of these studies took place in Europe (the Netherlands and Slovenia, respectively). The findings from both studies suggest that perceptions of procedural justice are associated with lower levels of prisoner misconduct. In an effort to examine the relationship between procedural justice, legitimacy (operationalized as obligation to obey), and prisoner misconduct (including self-reports and officially recorded data), Reisig and Meško (2009) interviewed 103 inmates in a Slovenian prison. They found that procedural justice exerted a significant negative influence on measures of both self-reported and officially recorded prisoner misconduct. As Reisig and Meško (2009) note: “prisoners who report that prison guards treat them fairly and with respect also report less rule-breaking behavior” (p. 15).

In another study, Beijersbergen and colleagues (2015) examined the relationship between general perceptions of procedural justice, anger, and self-reported and official reports of misconduct using a longitudinal study of 806 Dutch prisoners. The results suggested that inmates who perceive greater levels of procedural justice at time 1 were significantly less likely to engage in misconduct at time 2. However, anger fully mediated the relationship between procedural justice and misconduct. Prisoners who perceived unfair treatment by correctional officers were more likely to experience feelings of anger, which in turn resulted in misconduct (Beijersbergen et al., 2015). Thus, anger was the mechanism through which procedural justice influenced prisoner misconduct. This finding is consistent with research on the affective or emotional consequences of procedural justice and injustice (Barkworth & Murphy, 2015).

To summarize, procedural justice theory posits that people’s decisions about whether to obey the law or cooperate with legal authorities are heavily influenced by their assessments of the extent to which justice officials behave in a fair and impartial manner. These normative procedural justice judgments are thought to be more

important for securing lawful behavior than alternative explanations like distributive justice, institutional performance, and risk of sanctions. Procedural justice is especially salient in an institutional correctional setting where inmates may have a long history of contacts with legal authorities and where their current environment involves much more regular and intense interactions with authorities. To date, the only empirical research linking perceptions of procedural justice to prisoner cooperation and compliance is based on studies from Europe. Here we examine these issues based on survey data from a sample of inmates at an adult, male transition facility (i.e. minimum security prison) in the United States.

The current study

The present study contributes to the limited body of empirical research on procedural justice in correctional settings. To our knowledge, this is the first study of its kind to offer a comprehensive empirical test of the effects of procedural justice and competing explanations using a sample of inmates in the United States. Although not the primary focus, we also test the possibility that anger may mediate the relationships between justice judgments and cooperation and compliance (Beijersbergen et al., 2015). Consistent with the literature on procedural justice and legitimacy, we test a multivariate model that specifies direct and indirect effects of procedural justice on cooperation and compliance. The indirect effects flow through inmates' internalized sense of obligation to obey correctional authorities. We also test the direct and indirect effects of three alternative factors thought to influence cooperation and compliance—distributive justice, institutional performance, and risk of sanctions—as well as the effects of four control variables. Figure 1 illustrates the conceptual model to be tested. For the sake of visual clarity, the control variables are omitted from Figure 1.

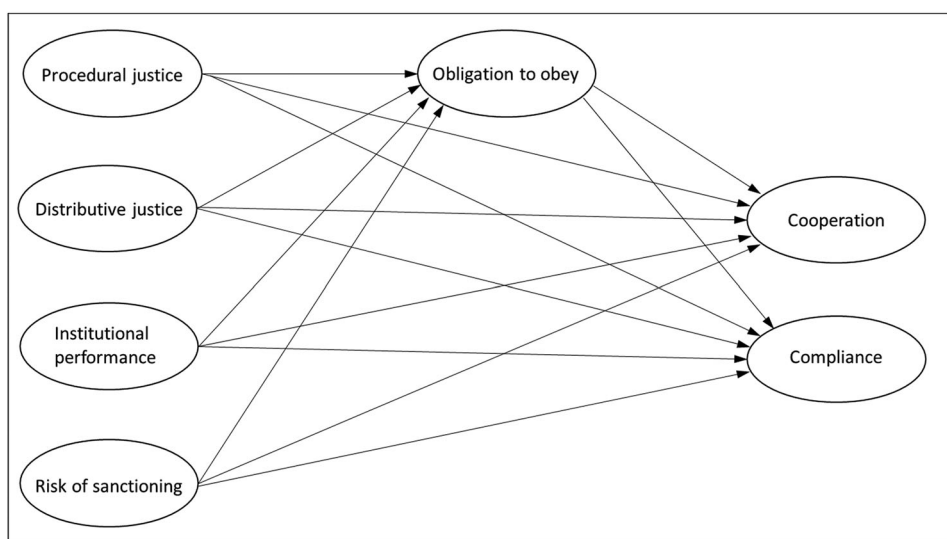


Figure 1. Conceptual model.

Methods

Data for this study were derived from a survey of male inmates in an adult transition facility in Chicago. Among facilities operated by the Illinois Department of Corrections, the facility is classified within the lowest security level category. Inmates qualify for admission to a transition facility based on a community correctional center assessment instrument. Eligible inmates are placed at one of nine Adult Transitional Work Release centers located throughout the state when space becomes available. Inmates are supervised in program activities structured around employment, vocational training, and various individual and group classes that provide substance abuse and mental health counseling. The transition facility where data were collected opened in the early 1980s and, as of early 2017, had a capacity of 429 inmates and a population of 337. The facility offers, for example, cognitive therapies, mental health services, the opportunity to earn a GED, and job readiness skills training.

At the time of the study, in 2006, 321 adult male inmates resided in the transition facility. Inmates were solicited to participate in the study during group meetings held at the facility every Monday and Tuesday between October and December 2006. Some residents did not attend group meetings because they worked irregular schedules, used unsupervised leave during the week, or attended other mandatory programming. Inmates who were not solicited during group meetings to participate in the study were approached individually. During individual and group meetings with subjects, a researcher explained the nature of the survey and how confidentiality would be maintained. Inmates who declined to participate in the study were allowed to leave the meeting without consequence. A researcher read the cover letter, study description, disclaimer, and survey instrument aloud for participants. To alleviate concerns that surveys would be viewed by staff members, and to enhance the validity of survey responses, inmates were instructed to place their completed surveys in sealed envelopes and were informed that all surveys would be mailed to a university in the southern region of the state for data entry.

Out of the total inmate population ($n = 321$), 249 inmates (78%) were asked to complete the survey. After several attempts, we were unable to reach the remaining 22% of inmates ($n = 72$) to request their participation in the study. These potential respondents had either been paroled from the center already ($n = 39$), had their work release status revoked ($n = 26$), or had physically escaped from the center ($n = 7$). Of the 249 inmates we approached to request participation in the study, 213 (85.5%) consented to participate. Characteristics of the final sample are presented in [Table 1](#).

Measures

The key theoretical constructs illustrated in [Figure 1](#) are each treated as latent variables and measured using multiple observed indicators. However, due to the complexity of the model relative to sample size, we were only able to rely on confirmatory factor analysis (CFA) methods to estimate the measurement model parameters for the three *endogenous* variables (obligation, cooperation, and compliance). To reduce model complexity and minimize the number of parameters to be estimated, we relied on weighted composites to measure the latent *exogenous* variables. These weighted

Table 1. Sample characteristics ($N = 213$).

Variable	Frequency (%)
Race	
African-American	135 (65.2%)
White, non-Hispanic	41 (19.8%)
Hispanic	24 (11.6%)
Other	7 (3.4%)
Highest level of education	
Less than high school / GED	61 (29.3%)
High school / GED	82 (39.4%)
Some college classes, no degree	48 (23.1%)
College degree	17 (8.1%)
Age	Mean = 31.92, SD = 9.57
Offense	
Drug	131 (62.1%)
Property	59 (28%)
Violent	16 (7.6%)
Other	5 (2.3%)
Days in custody through study completion (Dec., 2006) ^a	Mean = 627.88, SD = 787.39
Days in work release through study completion	Mean = 401.02, SD = 265.55

^aInformation on custody dates and admission to the transition facility were collected from official records maintained at the facility.

composites were computed in two stages. First, we estimated a preliminary CFA model containing the latent exogenous variables and their indicators. The model fit the data well according to multiple measures (CFI = .98; TLI = .98; RMSEA = .05; WRMR = .94).³ Second, we then summed the products of each item and its CFA loading to compute a weighted composite measure of each latent variable. The details of the factor analytic procedures are outlined in a later section. Consistent with [Figure 1](#), our final model contains seven composite measures, including four measured using weighted composites (procedural justice, distributive justice, perceived performance, and risk of sanctions), and three measured using CFA (obligation to obey correctional authorities, willingness to cooperate, and self-reported compliance). Items used to measure all concepts are listed in [Appendix 1](#).

We measured *procedural justice* using 11 items that reflect overall assessments of procedural fairness, the quality of decision making, and the quality of treatment. Although procedural justice is often conceptualized as multidimensional, measures of its separate dimensions are usually not empirically separable because they are so highly correlated (Johnson, Maguire, & Kuhns, 2014; Maguire & Johnson, 2010). Previous research based on the same data set used in this study relied on the same items used here and found the overall procedural justice construct to be unidimensional (Henderson, Wells, Maguire, & Gray, 2010). The preliminary CFA factor loadings for these items ranged from .58 to .86, with a mean of .70 and a median of .69.

An instrumental perspective suggests that people's decisions to comply or cooperate are based on a utilitarian calculus that weighs the perceived costs and benefits (Tyler, 2006). In this study we examine the effects of three factors commonly viewed

³CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root mean square error of approximation; and WRMR = weighted root mean residual.

as instrumental in nature: distributive justice, risk of apprehension, and institutional performance (see endnote 2 for a discussion of the normative versus instrumental terminology). Distributive justice refers to the perceived fairness of the outcomes (punishments and rewards) meted out by an authority figure (Tyler, 2006; Walker, Lind, & Thibaut, 1979). Individuals may be more willing to comply or cooperate with legal authorities when they perceive these outcomes to be fairly distributed (Tyler, 2006). We measure perceived *distributive justice* using two items. The preliminary CFA factor loadings for these items ranged from .51 to .99, with a mean of .75. A two-item measure of a latent concept is not ideal; unfortunately, these were the only distributive justice items that performed well during our construct validation procedures. Based on the perceptual deterrence literature, we also measure perceived *risk of sanctions* using nine items. The preliminary CFA factor loadings for these items ranged from .73 to .93, with a mean of .87 and a median of .90. Perceptions of institutional performance are also thought to influence cooperation and compliance among inmates. We measure *institutional performance* using three items that tap into the institution's perceived effectiveness in controlling violence, gangs, and drug sales. The preliminary CFA factor loadings range from a minimum of .57 to .98 with a mean of .75 and a median of .70.

As shown in Figure 1, we treat obligation to obey correctional authorities as a mediator between our four substantive exogenous variables (procedural justice, distributive justice, risk of sanctions, and institutional performance) and our two distal outcome variables (cooperation and compliance). We measure *obligation to obey* using seven items that tap into inmates' sense of duty to comply with the directives of correctional officers and the rules of the institution in which they are housed. CFA factor loadings for these items ranged from a minimum of .67 to a maximum of .92, with a mean of .78 and a median of .74.

The two key outcome variables in our conceptual model are willingness to cooperate and self-reported compliance with correctional authorities. We measure *willingness to cooperate* using three items that tap into the likelihood that inmates will provide useful information to correctional authorities. Factor loadings for these items ranged from a minimum of .81 to a maximum of .97, with a mean and median of .89. We measure self-reported *compliance* using nine items that tap into the extent to which inmates follow the institution's rules. Factor loadings for these items ranged from a minimum of .59 to a maximum of .90, with a mean of .79 and a median of .80.

We also include four control variables thought to be associated with the outcomes in this study. These include measures of age, race, education, and the length of stay in the transition facility. We include a continuous measure of age in years. Respondents ranged in age from 18 to 61, with a mean of just under 32 and a median of 28. We include a binary measure of race (1 = African-American, 0 = other). Nearly, two-thirds (65.2%) of respondents were African-American. We also include a binary measure of education (1 = high school diploma/GED or higher, 0 = other). Approximately, 70.7% of respondents had a high school diploma/GED or higher. Finally, we include a continuous measure of length of stay (in days) at the transition facility. Length of stay ranged from 39 to 1453 days, with a mean of 401 and a median of 333.

Model estimation

Our model estimation procedures are based on the assumption that the ordinal survey items used to measure the endogenous variables are categorical approximations of underlying continuous random variables. Although the indicators are categorical, the latent variables are treated as continuous.⁴ Because the latent variable indicators in this study are ordinal, we used a robust mean and variance adjusted weighted least squares (WLS) estimator available in Mplus (Muthén & Muthén, 1998–2015). Monte Carlo simulations have found that this estimator performs well in models with categorical outcomes, including those with skewed distributions and small samples (Beauducel & Herzberg, 2006; Flora & Curran, 2004; Muthén, du Toit & Spisic, 1997; Rhemtulla, Brosseau-Liard, & Savalei, 2012).

Given the small sample size relative to the number of parameters being estimated, we also provide secondary estimates from the use of a Bayesian estimator in Mplus using the Markov Chain Monte Carlo algorithm. Simulation research shows that this estimator performs well with small samples compared with other estimation procedures, especially for CFA models with ordinal data (Asparouhov & Muthén, 2010; Liang & Yang, 2014). Bayesian estimation is useful in applied research because it does not assume large samples, and therefore, “smaller data sets can be analyzed without losing power while retaining precision” (van de Schoot, Broere, Perryck, Zondervan-Zwijnenburg, & van Loey, 2015, p. 2). Bayesian methods also tend to handle missing data better than WLS, which relies on pairwise estimation. As noted by Asparouhov and Muthén (2010), “the Bayes estimator provides a valid full-information alternative to the [mean and variance adjusted WLS] estimator and can be used for example to ensure that missing data is properly accounted for or to ensure that the most efficient estimates are obtained” (p. 37). We include estimates from both methods to provide a more complete understanding of the models being estimated here.

Results

Table 2 lists the regression estimates from the structural equation models for our three outcomes: obligation to obey correctional authorities, willingness to cooperate with correctional authorities, and self-reported compliance with correctional authorities.⁵ We begin by reviewing the WLS estimates. With regard to obligation, the model fit the data well (CFI = .98; TLI = .98; RMSEA = .05; WRMR = .74). Consistent with the process-based model of regulation, procedural justice had the strongest effect on obligation to obey. The effects of distributive justice and institutional performance were

⁴Many of the methods used in conventional confirmatory factor analysis (CFA) based on normal theory need to be adapted for use with ordinal indicators. Instead of using a covariance matrix as input, a polychoric correlation matrix is used for polytomous data (Brown, 2006). These correlations treat the observed categorical variable y as a crudely categorized approximation of an underlying continuous latent response variable, y^* . According to Brown (2006): “The underlying y^* variables are related to observed categorical variables by threshold parameters (τ). In the case of a binary indicator ($y = 0$ or 1), the threshold is the point on y^* where $y = 1$ if the threshold is exceeded (and where $y = 0$ if the threshold is not exceeded). Polytomous items have more than one threshold parameter... the number of thresholds is equal to the number of categories minus one” (p. 390). Although thresholds are an important part of the factor models used in this study, we do not interpret these parameters for substantive purposes.

⁵Our diagnostics revealed that the largest variance inflation factor was 1.75, which suggests that multicollinearity is not problematic in this model.

Table 2. Regression results.

Predictors	Obligation		Cooperation		Compliance	
	WLS	Bayes	WLS	Bayes	WLS	Bayes
Procedural justice	.355***	.357***	.433***	.347**	.188	.114
Distributive justice	.079	.080	.025	.010	-.113	-.045
Institutional performance	.068	.129*	.116	.051	.036	.026
Risk of sanctions	.130*	.145*	.061	-.023	.093	.114
Obligation to obey	–	–	.066	.080	.218**	.332**
Age (in years)	.089	.063	.183*	.104	.133	.124
Race (black = 1; other = 0)	-.215**	-.182**	.036	-.036	-.071	-.073
Education (HS/GED or above = 1; else = 0)	-.051	-.041	-.097	-.104	.121	.073
Time spent in facility (in days)	-.023	-.001	-.145	-.133*	.096	.062
Number of cases (N)	186	213	186	213	186	213
Explained variance (R ²)	30.4%	34.5%	37.4%	30.2%	26.1%	32.5%

Note: Cell entries are fully standardized regression coefficients. * $p < .05$, ** $p < .01$, *** $p < .001$.

not significantly different from zero. Risk of sanctions exerted a significant positive effect on obligation. Among the control variables in the model, only race exerted a significant effect. Black respondents reported significantly lower feelings of obligation to obey correctional authorities than other respondents. The results from the Bayesian estimates mirrored those from the WLS estimates with one exception. The estimate of the effect of institutional performance was significant in the Bayesian model ($\beta = .129$, $p = .035$), but not in the WLS model ($\beta = .068$, $p = .334$). The model explained 30.4% of the variation in obligation according to the WLS estimates and 34.5% according to the Bayesian estimates.

With regard to cooperation, the model fit the data well (CFI = .97; TLI = .97; RMSEA = .05; WRMR = .78). Once again, consistent with the process-based model of regulation, procedural justice had the strongest effect on willingness to cooperate. The effects of distributive justice, institutional performance, risk of sanctions, and obligation to obey were not significantly different from zero. Among the control variables, only age exerted a significant effect on cooperation. Older respondents reported a greater willingness to cooperate with correctional authorities than younger respondents. The results from the Bayesian estimates mirrored those from the WLS estimates with two exceptions. The effects of age on cooperation were significant in the WLS model but non-significant in the Bayesian model. The non-significant coefficient suggests that the effect of age should be considered tentative given these conflicting findings. The effect of time spent in the transition facility was significant in the Bayesian model ($\beta = -.133$, $p = .033$) but borderline non-significant in the WLS model ($\beta = -.145$, $p = .053$).⁶ These findings suggest that inmates whose stay in the transition facility was longer are less willing to cooperate with correctional authorities. The model explained 37.4% of the variation in cooperation according to the WLS estimates and 30.2% according to the Bayesian estimates.

⁶We also tested the effect of total incarceration length based on the most recent offense, including time spent in the current facility and any previous facilities. The effects of this variable were not significant in the Bayesian model ($\beta = -.089$, $p = .094$) but were significant in the WLS model ($\beta = -.159$, $p = .017$). Our findings suggest that incarceration length, whether overall or in the current facility, may have a negative influence on willingness to cooperate with prison authorities. However, due to the conflicting findings, any such inference must be considered tentative.

With regard to compliance, the model once again fit the data well (CFI = .95; TLI = .95; RMSEA = .05; WRMR = .94). The effects of procedural justice, distributive justice, institutional performance, and risk of sanctions were not significantly different from zero. Obligation to obey correctional authorities had the strongest effects on self-reported compliance. None of the control variables exerted a significant effect on compliance. The results from the Bayesian estimates mirrored those from the WLS estimates. The model explained 26.1% of the variation in cooperation according to the WLS estimates and 32.5% according to the Bayesian estimates.

Indirect effects

So far we have examined the direct effects of procedural justice and other measures on obligation, cooperation and compliance. Yet, there are other causal pathways through which these factors might influence outcomes like cooperation and compliance. One possibility, as specified earlier in [Figure 1](#), is that these effects may be mediated by obligation to obey. Another possibility, which we introduced earlier in the paper, is that these effects may be mediated by anger (e.g. Barkworth & Murphy, 2015; Beijersbergen et al., 2015). Here, we examine both possibilities.

[Figure 1](#) specified direct effects of procedural justice on cooperation and compliance, as well as indirect effects on these two outcomes through obligation to obey. We found a significant direct effect of procedural justice on obligation and cooperation, but not on compliance. We found a significant direct effect of obligation on compliance, but not on cooperation. Thus, one possibility is that procedural justice exerts only a direct effect on cooperation, with no indirect effect through obligation. Similarly, although procedural justice did not have a direct effect on compliance, it may exert an indirect effect on compliance through obligation. Our findings on the direct and indirect effects of procedural justice and competing explanations via obligation to obey are summarized in [Table 3](#).

Table 3. Direct and indirect effects associated with obligation to obey.

Effects	WLS	Bayes
<i>Obligation to Obey</i>		
Obligation → Cooperation	.066	.080
Obligation → Compliance	.218**	.332**
<i>Procedural Justice</i>		
Procedural Justice → Obligation	.355***	.357***
Procedural Justice → Obligation → Cooperation	.023	.026
Procedural Justice → Obligation → Compliance	.077*	.115***
<i>Distributive Justice</i>		
Distributive Justice → Obligation	.079	.080
Distributive Justice → Obligation → Cooperation	.005	.004
Distributive Justice → Obligation → Compliance	.017	.025
<i>Institutional Performance</i>		
Institutional Performance → Obligation	.068	.129*
Institutional Performance → Obligation → Cooperation	.004	.007
Institutional Performance → Obligation → Compliance	.015	.040*
<i>Risk of Sanctions</i>		
Risk of Sanctions → Obligation	.130*	.145*
Risk of Sanctions → Obligation → Cooperation	.009	.008
Risk of Sanctions → Obligation → Compliance	.028	.047**

Note: Cell entries are fully standardized regression coefficients. * $p < .05$, ** $p < .01$, *** $p < .001$.

Our earlier results showed that procedural justice has a significant direct effect on cooperation (Table 2). The results shown in Table 3 reveal that procedural justice does not have a significant indirect effect on cooperation through obligation to obey. Similarly, we find no significant indirect effects of distributive justice, institutional performance, or risk of sanctions on cooperation through obligation to obey.

Our earlier results showed that procedural justice does not have a significant direct effect on compliance (Table 2). However, the results shown in Table 3 reveal that procedural justice does have a significant indirect effect on compliance through obligation to obey. Thus, while procedural justice influences both cooperation and compliance, the causal pathways through which those effects are manifested differ across outcomes. Procedural justice theory does not contain a ready explanation for these findings. Our earlier results also showed that distributive justice does not have a significant direct effect on compliance (Table 2). The results shown in Table 3 reveal that distributive justice also does not have a significant indirect effect on compliance via obligation to obey. Our earlier results showed that neither institutional performance nor risk of sanctions had a significant direct effect on compliance (Table 2). The results shown in Table 3 reveal that both of these variables had a significant indirect effect on compliance via obligation to obey in the Bayesian estimates but not in the WLS estimates. Overall, our findings suggest that the causal pathways through which procedural justice and other explanatory factors influence compliance are complex, consisting of a mix of direct and indirect effects that are not yet well understood.

Next we introduce a supplementary analysis intended to explore the effects of anger on cooperation and compliance. One possibility is that anger serves as a mediator between procedural justice and these two outcomes, such that perceived injustices increase anger and, in turn, decrease cooperation and compliance. To test this possibility, we add a measure of anger into the models for cooperation and compliance.⁷ We also test the effects of the other three competing explanations (distributive justice, institutional performance, and risk of sanctions) on cooperation and compliance via anger. As shown in Figure 2, anger occupies the same position in the model as obligation, with paths specified to allow the effects of all four substantive exogenous variables (excluding the controls) to flow through it.

Several useful findings emerge from our analysis of the role of anger in shaping cooperation and compliance (see Table 4). Anger did not have a significant direct effect on willingness to cooperate in either the WLS or the Bayesian models, but it had a significant direct effect on self-reported compliance in both models. The significant negative coefficients suggest that respondents who are angrier at correctional authorities are less likely to comply with them.

Next we examine the factors that influence anger. As shown in Table 4, although procedural justice did not exert a statistically significant effect on anger, distributive

⁷To measure anger, we rely on a single item that asks respondents about the extent to which they feel anger toward correctional officers. The response options for this item range from 1 (none) to 4 (a lot). The item has a mean of 2.4 and a median of 2, with nearly a quarter (23%) of respondents indicating that they feel a lot of anger toward correctional officers.

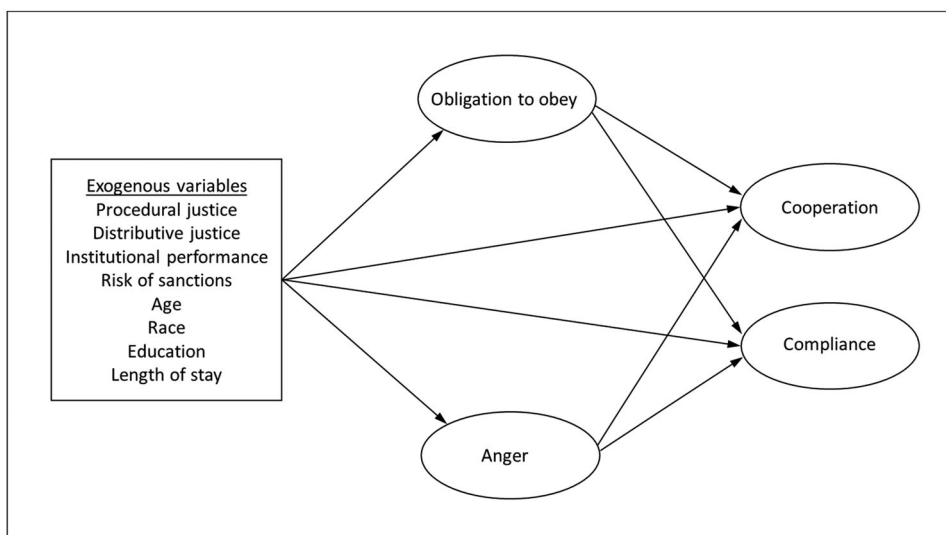


Figure 2. Visual representation of structural equation model that includes anger.

Table 4. Direct and indirect effects associated with anger.

Effects	WLS	Bayes
<i>Anger</i>		
Anger → Cooperation	-.012	.016
Anger → Compliance	-.295***	-.223**
<i>Procedural Justice</i>		
Procedural Justice → Anger	-.109	-.104
Procedural Justice → Anger → Cooperation	-.012	-.001
Procedural Justice → Anger → Compliance	.032	.022
<i>Distributive Justice</i>		
Distributive Justice → Anger	-.188**	-.179**
Distributive Justice → Anger → Cooperation	.002	-.002
Distributive Justice → Anger → Compliance	.056*	.037*
<i>Institutional Performance</i>		
Institutional Performance → Anger	-.085	-.087
Institutional Performance → Anger → Cooperation	.001	-.001
Institutional Performance → Anger → Compliance	.010	.017
<i>Risk of Sanctions</i>		
Risk of Sanctions → Anger	-.140	-.121*
Risk of Sanctions → Anger → Cooperation	-.000	-.001
Risk of Sanctions → Anger → Compliance	.041	.024*

Note: Cell entries are fully standardized regression coefficients. * $p < .05$, ** $p < .01$, *** $p < .001$.

justice had significant, negative effects on anger in both the WLS and Bayesian models. These findings suggest that among inmates in a Chicago transition facility, the fair or unfair allocation of outcomes (distributive justice) has a stronger effect on anger than the use of fair or unfair procedures (procedural justice). Respondents who believe correctional authorities allocate outcomes unfairly report stronger feelings of anger. Institutional performance did not have a significant effect on anger, and risk of sanctions had mixed effects. In the WLS estimates, risk of sanctions did not have a significant effect on anger, but in the Bayesian estimates, it had a significant negative effect on anger. This finding, which should be considered tentative given the mixed effects

we observed across the two models, suggests that when people perceive the risk of sanctions as high, they may be less likely to feel anger toward correctional officials.

Finally, we consider the indirect effects of the four exogenous variables on cooperation and compliance via anger. Consistent with our earlier finding that anger did not have a significant direct effect on cooperation, none of the exogenous variables in the model exerted a significant indirect effect on cooperation. The findings with regard to compliance are more complex. Procedural justice did not have a significant indirect effect on compliance via anger, however distributive justice had a significant indirect effect on compliance in both the WLS and Bayesian models. The significant positive coefficients suggest that when inmates perceive the outcomes allocated to them as *unfair*, they feel angrier and therefore less likely to comply. Similarly, when they perceive that the outcomes allocated to them are *fair*, they feel less angry and therefore more likely to comply. Perceived institutional performance did not have a significant indirect effect on compliance. Perceived risk of sanctions had mixed effects across the WLS and Bayesian models. Its effect in the WLS model was not statistically significant, but in the Bayesian model it had a small but significant positive effect. This finding, which should be considered tentative given the mixed effects we observed across the two models, suggests that when people perceive the risk of sanctions as high, they may be less likely to feel anger toward correctional officials and therefore more likely to comply.

Discussion

Based on a survey of inmates in an adult male transition facility in Chicago, we tested the effects of procedural justice and three alternative explanations on three outcomes: obligation to obey, willingness to cooperate, and self-reported compliance with correctional authorities. Our results reveal that procedural justice has significant direct effects on obligation and cooperation, but not on compliance. Inmates who perceive correctional authorities as procedurally just report stronger feelings of obligation to obey and willingness to cooperate with those authorities. Our mediation analyses revealed that although procedural justice did not exert a direct effect on compliance, it did exert an indirect effect through obligation to obey. Put differently, inmates who perceived correctional authorities as behaving in a procedurally just manner reported stronger feelings of obligation, which in turn were associated with greater self-reported compliance. However, we did not observe an indirect effect of procedural justice on cooperation through obligation. Thus, the effects of procedural justice manifest themselves differently on cooperation and compliance. These findings highlight the importance of clarifying the precise causal pathways through which procedural justice influences different outcomes.

At a more general level, these findings reinforce the importance of procedural justice in shaping beneficial outcomes among inmates in a correctional environment. Most studies of procedural justice in criminal justice settings have focused on policing and courts. Yet, procedural justice theory is thought to apply to any relationship between an authority figure and those who are subordinate to that authority. Correctional officers wield significant authority over inmates, guiding their daily activities within a system of rules and norms, administering privileges and punishments,

and serving as agents of the state in depriving them of their liberty (Marquart, 1986; Sykes, 2007). Procedural justice theory suggests that how correctional authorities exercise that authority has significant implications for their ability to maintain order and stimulate prosocial behavior, including cooperation and compliance, among inmates. Our findings suggest that inmates' willingness to cooperate with correctional authorities is directly influenced by their perceptions of the extent to which correctional officers treat them in a fair and humane manner. Consistent with the process-based model of regulation, procedural justice appears to influence compliance indirectly by enhancing inmates' internalized feelings of obligation to obey correctional authorities, which in turn are associated with compliance (Sunshine & Tyler, 2003).

These findings contribute to a growing body of empirical research on the importance of procedural justice and legitimacy in a correctional environment (Beijersbergen et al., 2015, 2016; Bierie, 2012; Brunton-Smith & McCarthy, 2016; Hacin & Meško, 2018; Henderson et al., 2010; Reisig & Meško, 2009). Procedural justice theory suggests that encouraging authority figures to behave in a fair manner may be an efficient and effective mechanism for achieving cooperation and compliance and maintaining order. This means taking inmates' perceptions of correctional authorities more seriously than would ordinarily be expected under a purely instrumental approach. According to Jackson et al. (2010), a procedural justice approach emphasizes that the subjective experience of unfairness "is a key determinant of dissatisfaction, anger and the delegitimization of prison regimes" (p. 9). As noted by Sparks et al. (1996), maintaining prison legitimacy requires correctional authorities to address procedural and relational issues, including "the recognition of prisoners in terms both of their citizenship and their ordinary humanity" (p. 330).

We tested the effects of procedural justice against three competing explanations: distributive justice, institutional performance, and risk of sanctions. Distributive justice did not have significant direct effects on willingness to cooperate or compliance. It also did not have a significant direct effect on obligation to obey or indirect effects on cooperation and compliance via obligation to obey. However, it did have a significant direct effect on anger, and a significant indirect effect on compliance via anger. This is an important finding that deserves further research. Existing quantitative research on the effects of procedural justice in correctional settings has not included measures of distributive justice and therefore little is known about its effects. However, a qualitative study based on interviews with prisoners in Slovenia found evidence that both procedural and distributive justice shaped compliance (Hacin & Meško, 2018). Understanding the relative effects of both procedural and distributive justice is important, particularly in a prison environment where it is likely that inmates are knowledgeable about the outcomes received by their peers. Distributive justice may emerge as more salient in contexts, like prisons, where people have greater information about the outcomes received by others.

Perceived institutional performance did not have significant direct effects on cooperation or compliance, but it did have a significant positive effect on obligation to obey in one of the two models we estimated. Institutional performance did not have a significant indirect effect on cooperation via obligation to obey, but it did have a significant positive effect on compliance via obligation in one of the two models we estimated. It did not have significant direct effects on anger, or significant indirect

effects on cooperation or compliance via anger. Overall, we observed few significant effects of perceived institutional performance. However, its effect on obligation to obey and on compliance via obligation is worthy of further exploration, particularly since these two findings only emerged as statistically significant using one estimator (Bayes) but not the other (WLS).

Perceived risk of sanctions had a significant direct effect on obligation to obey, but not on cooperation and compliance. It did not have a significant indirect effect on cooperation via obligation, but it did have a significant indirect effect on compliance via obligation. This finding suggests that when people perceive the risk of sanctions to be higher, they feel a greater sense of obligation to obey, and therefore, they are more likely to comply. Recall that the direct effect of risk of sanctions was nonsignificant, but its indirect effect via obligation was significant. This finding provides preliminary evidence about the psychological mechanisms through which perceived risk of sanctions influence compliance. That mechanism is indirect, operating through people's feelings of obligation to obey the law or legal authorities. Perceived risk of sanctions had a significant negative effect on anger in the Bayesian estimates but not in the WLS estimates. It also had a significant indirect effect on compliance via anger. This finding suggests that when perceived risk is higher, inmates may be less angry and therefore more likely to comply. This curious finding is worthy of further research, particularly qualitative research that explores people's emotional reactions to variations in perceived risk of sanctions.

Though not the main focus of our research, our findings also contribute to an emerging body of research and theory on the role of emotion, particularly anger, in shaping cooperation and compliance (Barkworth & Murphy, 2015; Beijersbergen et al., 2015). Our results reveal that, in this sample, procedural justice did not have a significant effect on inmates' feelings of anger toward correctional officers. Although anger did not have a significant effect on inmates' willingness to cooperate with correctional authorities, it did have a significant effect on their self-reported compliance with these authorities. Mediation analyses confirmed that procedural justice did not have indirect effects on cooperation and compliance through anger. These findings are inconsistent with those from previous studies. For instance, Barkworth and Murphy (2015) found that negative emotion (including anger, anxiety, and frustration) fully mediated the effect of procedural justice on compliance in two separate samples. Their study, however, focused on public perceptions of police in Australia and did not take place in a correctional setting. A longitudinal study of Dutch prisoners also found that "anger fully mediated the effect of procedural justice on prisoners' misconduct" (Beijersbergen et al., 2015, p. 196).

We can only speculate about why our findings differ from those reported in previous research. One possibility may be the distinctive nature of the sample or the setting where our research was carried out. Another possibility may be the wider range of exogenous variables included in this study. For instance, neither of the studies finding that anger mediated the effect of procedural justice on compliance controlled for the effects of distributive justice (see Barkworth & Murphy, 2015; Beijersbergen et al., 2015). Yet, equity theory suggests that an inequitable allocation of outcomes can stimulate anger and resentment, which in turn can promote resistance, rebellion, and

noncompliance (Adams, 1963, 1965). Thus there are compelling reasons to control for the effects of both procedural *and* distributive justice.

This concern is borne out in our findings. Although *procedural* justice did not have a statistically significant effect on anger, we found that *distributive* justice had a significant effect on anger. This finding reveals that in this sample, the perceived fairness with which correctional authorities allocate outcomes (distributive justice) has a stronger effect on anger than the perceived fairness of their decision-making procedures (procedural justice). Inmates who perceived correctional officers as allocating outcomes inequitably reported experiencing stronger feelings of anger. Mediation analyses revealed that distributive justice has a significant indirect effect on compliance through anger. Though criminology as an academic discipline is currently experiencing a procedural justice revolution, these findings provide a useful reminder that distributive justice may also play a key role in shaping the attitudes and behaviors of those who come into contact with the criminal justice system. These findings also underscore the role of emotion and affect in mediating the influence of procedural and distributive justice on outcomes like cooperation and compliance. The interpersonal interactions between authority figures and subordinates do not take place in an emotional vacuum. These interactions often trigger intense emotional reactions among those involved. Understanding the consequences of these interactions at a deeper level will mean continuing to unpack the causal linkages between experiences and perceptions of justice, the consequent emotional reactions, and the downstream attitudinal and behavioral outcomes.

While this study makes several unique contributions to the literature, it is not without limitations. Perhaps foremost among these is its reliance on cross-sectional data to draw inferences about causal relationships. All such inferences should therefore be considered tentative until such time as they can be replicated using more robust experimental or quasi-experimental designs that are capable of addressing any threats to internal validity. Also, the small sample size in this study (relative to the complexity of the models) placed limits on the kinds of analysis we could carry out. A larger sample would increase confidence in the findings. This concern is alleviated to some extent by the use of Bayesian methods that are known to perform better than frequentist methods under such conditions (Asparouhov & Muthén, 2010; Lee & Song, 2004; van de Schoot et al., 2015). Finally, it is not clear to what extent the findings reported here would generalize to other types of correctional institutions, including jails and more conventional prison facilities. Further research in a wider variety of correctional settings would be useful for understanding the external validity of the findings reported here.

The findings reported here also raise interesting possibilities for future research. While several studies have now estimated the effects of procedural justice in correctional settings, this is the first study to our knowledge to estimate the effects of distributive justice. Our findings echo those from a recent qualitative study (Hacin & Meško, 2018) and suggest that distributive justice may play a more important role in shaping cooperation and compliance than previously thought. Our exploration of direct and indirect effects via obligation to obey and anger also raised interesting questions about the psychological mechanisms through which procedural justice and other factors shape cooperation and compliance. Our findings suggest that these

mechanisms may be more complex than previously thought, with some factors exerting direct effects and other factors exerting indirect effects. Further research is needed in a variety of correctional settings to help untangle the complex web of causal effects through which procedural justice, distributive justice, institutional performance, and perceived risk of sanctions shape key outcomes like cooperation and compliance with correctional authorities.

Conclusion

Maintaining order is of paramount importance for the safe and effective functioning of correctional facilities (Dilulio, 1987). Correctional authorities have a variety of methods at their disposal for maintaining such order. Although instrumental approaches have their place within a correctional context, normative approaches, which rely on the fair and humane treatment of inmates, can have substantial long-term impacts on the orderly functioning of a correctional facility (Franke et al., 2010; Goetting & Howsen, 1986; Sparks et al., 1996). Correctional staff who embrace procedurally just treatment of offenders can improve inmates' perceptions of staff as fair and appropriate, and can also increase inmates' obligation to obey, willingness to cooperate, and compliance with correctional authorities and institutional rules. The present study tested the effects of normative, instrumental, and affective factors on compliance and cooperation within an adult, male transition facility in Chicago. We tested the direct effects of procedural justice on cooperation and compliance, in addition to its indirect effects through inmates' sense of obligation to obey correctional authorities and their self-reported feelings of anger. As our results demonstrate, procedural justice has a significant impact on cooperation, compliance, and obligation to obey, albeit through different causal pathways.

To date, much of the procedural justice research in criminal justice settings has focused on police and courts. The situational context of a prison, however, is vastly different from a street or courtroom. While individuals in the general public may have limited knowledge regarding others' encounters with the police and courts, the confines of a prison may result in prisoners having more detailed knowledge of interactions between other prisoners and correctional officials. This knowledge provides not only a source of comparison for their own justice-related judgments, but it also renders justice issues more salient in the day-to-day lives of inmates. Although this study adds to the small but growing body of empirical research on procedural justice in correctional settings, more research is needed to fully disentangle the effects of normative, instrumental, and affective factors on prisoner compliance and cooperation.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Appendix: items and scales

Procedural justice

- How often do correctional officers make decisions about how to handle problems in fair ways?
- How often do correctional officers treat people fairly?
- How often do correctional officers treat inmates with dignity and respect?
- How often do correctional officers accurately understand and apply the rules?
- How often do correctional officers make decisions based on facts not their personal biases or opinions?
- How often do correctional officers try to get the facts in a situation before deciding how to act?
- How often do correctional officers give honest explanations for their actions?
- How often do correctional officers treat everyone equally?
- How often do correctional officers respect inmates' rights?
- How often do correctional officers give inmates the chance to express their views before making decisions?
- How often do correctional officers treat inmates politely?

Distributive justice

- Correctional officers give some inmates less help than they give others.
- Correctional officers do not treat all inmates equally.

Risk of sanctions

How likely it is that you would be caught and punished if you:

- Did not follow direct orders from prison staff.
- Broke the rules against driving.
- Broke the rules against trading or trafficking property, like clothes, money, or food, with other inmates or staff.
- Made too much noise at night.
- Fought with other inmates.
- Broke the curfew laws.
- Stole other inmates' property.
- Broke the rules about how to treat staff.
- Gambled.

Institutional performance

- The DOC has done a good job controlling violence problems in correctional facilities.
- The DOC has done a good job controlling gang-related problems in correctional facilities.
- The DOC has done a good job controlling drug sales in correctional facilities.

Obligation to obey correctional authorities

- I feel that I should accept the decisions correctional officers make.
- People should obey DOC rules even if it goes against what they think is right.
- The DOC work best when inmates follow the directives of correctional officers.
- You should do what correctional officers tell you to do even when you do not understand the reasons for their decision.
- You should do what correctional officers tell you to do, even when you disagree with their decisions.
- You should do what correctional officers tell you to do, even when you do not like the way they treat you.
- You should accept the decisions made by correctional officers, even if you think they are wrong

Cooperation

How likely would you be to:

- Alert correctional staff when another inmate breaks a rule.
- Report dangerous or suspicious activities to correctional staff.
- Give correctional staff information that would help them prevent problems.

Compliance

How often do you:

- Follow direct orders from the staff.
- Follow rules about not driving.

- Follow rules about not trading or trafficking property, like clothes, money, or food, with other inmates or staff.
- Follow rules about not making too much noise at night.
- Follow rules about not fighting with other inmates.
- Follow curfew rules.
- Follow rules about not stealing other inmates' property.
- Follow rules about how to treat prison staff.
- Follow rules about not gambling.

Anger

- Now we would like to know how you feel about correctional officers... Report how much each of these words describes your feelings: Anger