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Procedural justice, anger, and prisoners' misconduct: A longitudinal study

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Abstract

Procedural justice literature suggests that when criminal justice authorities treat people with fairness and respect, people will be more likely to comply with authority's decisions and rules. Up until now, prior research has largely neglected the correctional context and has often used cross-sectional designs. The aims of this study were to examine (1) the longitudinal relationship between prisoners' procedural justice perceptions and their misconduct, and (2) the mediating role of anger in this relationship. Using two waves of survey data (T1 and T2) and disciplinary reports from a sample of 806 Dutch prisoners, structural equation models were employed to investigate associations. The results show that prisoners who felt treated procedurally just in the correctional facility at T1 were less likely to report engaging in misconduct at T2. They were also less likely to have received a disciplinary report at T2. Anger fully mediated the effect of procedural justice on prisoners' misconduct.

4.1 Introduction

Traditionally, ideas on how to secure citizens' compliance with the law and how to maintain order in society have been limited to instrumental and economic (deterrence) arguments that rely on sanctions and incentives to regulate citizen's behavior (Tyler, 1990). Insights from social psychology, however, have drawn attention to an important supplementary notion, namely that of a fair and respectful treatment of citizens by criminal justice authorities. Scholars formulating the so-called procedural justice theory (Leventhal, 1980; Lind & Tyler, 1988; Thibaut & Walker, 1975; Tyler, 1990) argue that people will be more likely to comply with the law when they feel treated in a procedurally just manner by actors who enforce the law. A procedurally just treatment includes, for instance, rules being applied in a neutral and consistent way and to be treated in a polite and respectful manner.

Today, a large body of empirical research on procedural justice effects has been conducted. This research has focused on the treatment by criminal justice actors participating in different phases of the criminal justice chain, such as police officers (Paternoster et al., 1997; Sunshine & Tyler, 2003; Tyler, 2001; Tyler & Fagan, 2008), lawyers (Peterson-Badali, Care, & Broeking, 2007; Sprott & Greene, 2010), and judges in courts (Sprott & Greene, 2010; Tyler, 2001). These studies have generally confirmed that a more procedurally just treatment by these actors results in a higher outcome satisfaction and decision acceptance (Casper et al., 1988; Tyler & Fagan, 2008), more confidence in the criminal justice system (Tyler, 2001), more cooperation with criminal justice actors (Sunshine & Tyler, 2003; Tyler & Fagan, 2008), and more law-abiding behavior (Paternoster et al., 1997).

Although the literature on procedural justice has been well developed over the past decades, both theoretically and empirically, the correctional context has been largely neglected. Most studies examining the effects of procedural justice in the criminal justice context have been conducted in police and court settings. Only a handful of studies have examined the effects of procedural justice on compliance in prison (e.g. Reisig & Mesko, 2009; Sparks & Bottoms, 1995). This lack of research is surprising, since order is an important goal of correctional administration. Prisoners' compliance and cooperation is vital to the manageability of correctional facilities. Misconduct damages the effective operation of penitentiary institutions, creates an unsafe and fearful atmosphere for both staff and prisoners, and increases the costs of correctional facilities (Goetting & Howsen, 1986). Knowledge on how to accomplish prisoners' compliance is, therefore, essential.

In addition, it is important to increase knowledge on the mechanisms through which prisoners translate experiences with unjust treatment into subsequent misbehavior, to explain why procedural justice may have beneficial effects on

prisoners' compliance. Tyler (1990, 2003) proposed that the relationship between procedural justice and compliance is mediated by legitimacy. Although prior studies in non-correctional settings have frequently confirmed this model (e.g. Murphy et al., 2009; Sunshine & Tyler, 2003), no empirical evidence has been found in the correctional context (Reisig & Mesko, 2009). In recent years, there has been an increased recognition that emotions may intervene between perceived unfairness and subsequent behavior (Weis, Suckow, & Cropanzano, 1999). According to both equity theory (Adams, 1965) and general strain theory (Agnew, 1992), perceptions of injustice lead to noncompliance and delinquent behavior via anger. A small number of prior procedural justice studies tend to support the mediating role of anger (e.g. Murphy & Tyler, 2008; VanYperen et al., 2000). However, these studies have been conducted in non-correctional settings.

The current study had two aims. The first aim was to examine the longitudinal relation between prisoners' perceptions of procedural justice and their (self-reported and registered) misconduct in correctional facilities. The second aim was to assess the mediating role of anger in the effect of procedural justice on prisoners' misconduct. To address these aims, data from the Prison Project were used. In this project, Dutch prisoners were surveyed three weeks (T1) and three months (T2) after their arrival in one of the Dutch pre-trial detention centers ($N = 806$). Official prison records of these prisoners were analyzed to collect data on their disciplinary reports.

4.2 Theory and prior research

4.2.1 Procedural justice and prisoners' misconduct

Procedural justice theory (Leventhal, 1980; Lind & Tyler, 1988; Thibaut & Walker, 1975; Tyler, 1990) proposes that people will be more likely to cooperate and comply with authorities' rules and decisions when authorities treat them in a procedurally just manner. According to Tyler (1990, p. 7), aspects of procedural justice include "neutrality, lack of bias, honesty, efforts to be fair, politeness, and respect". Procedural justice theory suggests that people are not so much concerned with the outcomes they receive in encounters with authorities, but that they are concerned with the fairness of the procedures and the interpersonal treatment they receive in these encounters. Tyler and Lind's (1992) group-value model proposes that procedural justice promotes compliance because the treatment one receives provides information about a person's group status. Fair procedures are expected to strengthen ties to social order because a dignified treatment certifies valued membership. On the contrary, an unfair treatment communicates disrespect and marginality. This may alienate and exclude people from their group, and result in noncompliance.

Applied to the correctional context, procedural justice theory suggests that an unfair and disrespectful treatment of prisoners is expected to result in resistance and misconduct among prisoners. Several prison scholars have supported the idea of procedural justice and legitimacy, and have proposed that considerations of fairness and respect are central in achieving and maintaining social order in prison (Bottoms, 1999; Jackson et al., 2010; Sparks & Bottoms, 1995). Liebling (2004, 2011) argued, for instance, that humanity, respect, staff-prisoner relationships, and fairness form a core component of the moral climate of a prison and are crucial to prison order.

Empirical research generally tends to support procedural justice theory. Prior studies have consistently found that a more procedurally just treatment by authorities results in higher outcome satisfaction, higher decision acceptance, and more cooperative behavior and compliance. These findings have been obtained in a number of different contexts, including law enforcement, regulatory, political, and organizational settings (e.g. Murphy et al., 2009; Paternoster et al., 1997; Sunshine & Tyler, 2003; Tyler, 2001; Tyler & Lind, 1992; VanYperen et al., 2000).

The number of studies conducted within the correctional context, however, has been limited. A small number has investigated the effect of procedural justice on prisoners' compliance. Reisig & Mesko (2009) examined the association between procedural justice and prisoners' misconduct in an adult male Slovene prison. Their findings showed that prisoners who felt treated in a procedurally just manner were (a) less likely to report engaging in misconduct, and (b) were less often officially charged with violating institutional rules in the following six months. In a qualitative study, Sparks and Bottoms (1995) compared two adult male English correctional facilities and concluded that procedural justice is important for prison order. Liebling's (2004) study within five English prisons revealed that prisoners considered prisons with lower scores on fairness more disorderly. Although they did not focus on the actual misconduct of prisoners, Butler and Maruna (2009) used an experimental design to show that prisoners who were reminded of the times they had been disrespected by authority figures, endorsed justifications for violence more often than prisoners who were not reminded of such disrespectful encounters. Contrary to these studies, Van der Laan and Eichelsheim (2013) have not found an effect of perceived justice on registered aggressive misconduct among juveniles in six Dutch correctional institutions.

4.2.2 Procedural justice, anger, and prisoners' misconduct

Injustice is undeniably linked to emotions. As Krehbiel and Cropanzano (2000, p. 339) point out: "We *feel* injustice in our gut". Individuals who have been treated unfairly describe injustice as an emotionally laden experience (Bies & Tripp, 2001).

Although currently, procedural justice theory does not include the mediating role of emotions, other (justice) theories do propose that perceptions of injustice lead to behavioral reactions via negative emotions.

First, equity theory (Adams, 1965) assumes that perceived injustice in outcomes results in negative emotions, like anger and resentment, and that these emotions, in turn, may motivate individuals to engage in behaviors that aim to restore equity. Such behaviors may include disrespectful and deviant behavior against authorities' rules and may result in noncompliance. Although equity theory focuses on distributive justice (i.e. the fairness of a decision's outcome, as opposed to the fairness of the decision-making process and quality of treatment), it has been suggested that the same mechanism applies to procedural justice. Skarlicki and Folger (1997) proposed that the anger associated with perceptions of unfair treatment may energize individuals to take revenge.

Second, according to Agnew's (1992, 2001) general strain theory, strain induces negative emotions such as anger, which, in turn, increase the likelihood that individuals will engage in delinquency. Several types of strain are distinguished, 'unjust treatment' among them. Agnew argued that strain in the form of unjust treatment is especially likely to result in criminal behavior, because this type of strain is more likely to provoke emotions conducive to crime, like anger. According to Agnew (1992, p. 60), "anger is the key emotion, because it increases the level of felt injury, creates a desire for retaliation and energizes the individual for action". Although in general strain theory, revenge is not directed specifically at the unfair authority, it does propose that anger mediates between perceptions of injustice and subsequent deviant and criminal behavior.

A small number of empirical studies in the procedural justice field have been conducted to examine the mediating role of anger in the relationship between procedural justice and compliance in non-correctional settings (Chebat & Slusarczyk, 2003; Gordijn et al., 2006; Murphy & Tyler, 2008; VanYperen et al., 2000). Overall, these studies tend to support the mediating effect of anger. In a longitudinal study, Murphy and Tyler (2008) investigated taxpayers' perceptions of the treatment they received from the Australian Taxation Office (i.e. procedural justice), their emotional reactions to the treatment they received, and their subsequent compliance behavior. Their findings showed that anger mediated the relationship between taxpayers' procedural justice perceptions at T1 and their self-reported tax compliance behavior at T2. A study within the retail banking sector in Canada has demonstrated that customers who made a complaint against the bank and felt treated in an unfair and disrespectful manner were more likely to display negative emotions, and, subsequently, were more likely to become 'disloyal' and close their bankaccount (Chebat & Slusarczyk, 2003).

In a vignette study of VanYperen et al. (2000), employees received a vignette in which the management of the company had decided that task enlargement for all employees was necessary. Vignettes differed in how fairly this decision had been reached. Results showed that when justice was low, employees experienced more negative emotions (e.g. hostility, irritability) and, subsequently, more often intended to react destructively, for instance by neglecting work duties and having an 'aggressive voice'. In another vignette study, Gordijn et al. (2006) also found support for mediation: Anger mediated the relationship between students' perceived unfairness of a governmental proposal and their intention to take action against that proposal.

Finally, in an attempt to test general strain theory, Mazerolle, Piquero, and Capowich (2003) conducted an vignette study among students. Although the focus of this study was somewhat different than the current study, as it focused on strain through distributive justice (instead of procedural justice) and retaliation was not directed at the unfair authority, it does support the mediating role of anger in the relationship between unjust experiences and misbehavior. As an indicator of strain, students were asked if they felt that the grades they had received at school in the past year were unfair. Students who experienced a higher level of strain (i.e. injustice), felt more angry about the scenario in the vignette in which someone's girlfriend was being harassed, and, subsequently, more often reported the intention to assault the man who was harassing the girl.

4.2.3 Limitations of prior research

Although previous procedural justice research in the correctional setting has generally confirmed that a perceived unjust treatment is related to a higher prevalence of prisoners' misconduct, these studies are not only few in number but are also hampered by some limitations. First, most procedural justice studies have used a cross-sectional design (but see Reisig & Mesko, 2009). This design does not allow for definite conclusions regarding the direction of the relationship between procedural justice and prisoners' misconduct. Findings may indicate that procedural justice perceptions influence misconduct, that misconduct influences procedural justice perceptions, or that both are true. Longitudinal studies are needed to make causal inferences and to test procedural justice theory accurately in the correctional context.

Second, prior studies have generally used a small sample of prisoners and have been conducted within a small number of correctional facilities. Some have been conducted within five or six institutions, while others have based their results on only one or two facilities. Studies using large-scale data sets can contribute to the generalizability of the procedural justice-prisoner misconduct effect.

Third, existing research has frequently relied on data acquired from a single source, most often self-report data. Prisoners are asked, for instance, about the treatment they have received from the correctional authorities and are asked about their (intended) compliance behavior. As a consequence, these studies may suffer from single-source bias: The relationship between the independent variable (i.e. procedural justice) and the dependent variable (i.e. compliance) may be partly attributable to the method of research (Podsakoff et al., 2003).

Fourth, prior research examining possible mediators in the effect of procedural justice on prisoners' compliance behavior has been almost absent. One exception is the study of Reisig and Mesko (2009), who investigated the mediating role of legitimacy, but have not found evidence for their model. Procedural justice research on the mediating effect of anger in the correctional context is lacking, although previous studies in non-correctional settings and studies using vignettes tend to support it. To gain knowledge about the effects of procedural justice in prison, it is important to assess the mechanisms through which prisoners translate (un)just experiences into subsequent behavior.

4.3 The current study

The current study examined the relationship between procedural justice, anger, and misconduct within the correctional context. Two hypotheses were formulated and tested based on the theories and prior research described above. First, it was hypothesized that prisoners who perceive their treatment as procedurally unjust at T1 are more likely to engage in misconduct at T2 (Hypothesis 1a). However, the reverse relationship might also be true: Prisoners who break facility rules feel treated with less respect and fairness by correctional authorities. Therefore, the opposite hypothesis was tested as well: Prisoners who engage in misconduct at T1 are more likely to perceive their treatment as procedurally unjust at T2 (Hypothesis 1b). Second, it was hypothesized that prisoners who perceive their treatment as procedurally unjust at T1 are more likely to experience anger at T1, and, subsequently, are more likely to engage in misconduct at T2 (i.e. anger mediates the effect of procedural justice on prisoners' misconduct) (Hypothesis 2).

In addition, this study controlled for five background characteristics of prisoners, as prior research has lead us to expect that these characteristics affect prisoners' perceptions of procedural justice and/or misconduct. These background characteristics are: age (e.g. Camp et al., 2003; Reisig & Mesko, 2009; Tyler, 1990), ethnicity (e.g. Cao, Zhao, & Van Dine, 1997; Jiang & Winfree, 2006), educational level (e.g. Porporino & Zamble, 1984; Tyler, 1990), self-control (e.g. Hochstetler & DeLisi, 2005; Piquero, Gomez-Smith, & Langron, 2004), and prior imprisonment (e.g. Casper et al., 1988; Jiang & Winfree, 2006).

To conclude, this paper attempts to overcome the limitations of prior procedural justice studies by focusing on the correctional context, using a longitudinal design, using data from a large-scale, nationwide study, using two independent data sources (i.e. prisoner self-report and official prison records), and examining anger as a possible mediator in the procedural justice-compliance relation.

Context

The current study was conducted in Dutch correctional facilities. At the time of the study, the Netherlands had 58 correctional facilities for adult prisoners, 32 of which were (partly) used as pre-trial detention centers. Institutions that consisted of both a prison and a pre-trial detention center had separate wings for pre-trial and convicted prisoners. On an average day in 2011, around 12,000 adult people were incarcerated; about half of them were pre-trial prisoners. Over 70% of all prisoners released in the Netherlands were confined for a maximum of three months. The median length of incarceration was one month, while the average length was 3.6 months (Linckens & De Looft, 2012).

Prison conditions are traditionally considered to be relatively lenient in the Netherlands (Downes, 1988). In the past two decades, however, budget cuts, a growing punitive climate among the population at large, politicians and members of the judiciary system, and a loss of the rehabilitation ideal have resulted in more restricted prison regimes and conditions (Downes & Van Swaaningen, 2007; Kruttschnitt & Dirkzwager, 2011). Nevertheless, prison conditions in the Netherlands are still rather liberal and humane compared to other countries. For instance, Dutch facilities do not face major overcrowding or understaffing, prisoners do not have to wear a prison uniform, most prisoners reside in a single cell, and staff-prisoner relationships are generally characterized as informal and supportive (Dervan, 2011; Kruttschnitt & Dirkzwager, 2011).

4.4 Method

4.4.1 Sample

The present study used data from the Prison Project, a longitudinal, nationwide study on the effects of imprisonment in the Netherlands. The sample of the Prison Project consisted of all adult male prisoners between the ages of 18 and 65, who were born in the Netherlands, who had no significant psychiatric problems, who had entered one of the Dutch pre-trial detention centers between October 2010 and April 2011, and who had been held in pre-trial detention for at least three weeks. Employees of the project approached and informed all eligible prisoners about the study during their first weeks

of pre-trial detention. Participation was voluntary, and prisoners were guaranteed confidentiality. All participants signed an informed consent declaration.

Data were used from T1 and T2, which took place approximately three weeks and three months after prisoners' arrival in pre-trial detention, respectively. At T1, 1,909 prisoners (69%) participated in a structured interview, while 1,764 prisoners (64%) also completed a self-administered questionnaire. Prison Project employees conducted the interview, which was held in private visiting rooms. Prisoners filled out the questionnaire in their own cells (in case prisoners had reading problems, a Prison Project employee administered the questionnaire orally). At T2, 1,010 prisoners were still incarcerated. Hence, 754 prisoners (43%) had already been released and were, therefore, unsuitable for T2. Of the 1,010 prisoners who could be approached, 824 prisoners (82%) participated in T2 and filled out a self-administered questionnaire in their cells. The majority (90%) still resided in a pre-trial detention center at T2; a small group of prisoners (10%) had already been convicted and transferred to a prison (wing). Information on registered misconduct was unavailable for 18 participants; therefore, our final sample consisted of 806 prisoners.

Using registered data of the Dutch Prison Service, T1 participants (1,764) and refusers (866) were compared on available background characteristics. The groups were similar with regard to their age ($T(1,839) = -1.05; p > 0.05$) and marital status at the time of their arrest ($\chi^2(1) = 0.64; p > 0.05$). The groups differed somewhat on their offense type ($\chi^2(3) = 12.38; p < 0.05$): Participants were less often suspected of property crimes (24% versus 30%), and more often of violent (46% versus 44%), drugs-related (13% versus 11%) and other offenses (17% versus 14%).

T2 participants (806) and refusers (186) did not differ with respect to their age ($T(990) = -0.41; p > 0.05$), self-control ($T(990) = 0.51; p > 0.05$), prior imprisonment ($\chi^2(1) = 1.85; p > 0.05$), perceived procedural justice at T1 ($T(971) = -1.82; p > 0.05$), experienced anger at T1 ($T(937) = 1.24; p > 0.05$), and self-reported misconduct at T1 ($\chi^2(1) = 3.45; p > 0.05$). The groups did differ, however, on ethnicity ($\chi^2(1) = 10.48; p < 0.05$) and educational level ($\chi^2(1) = 6.73; p < 0.05$): Prisoners with a non-Dutch background (51% versus 38%) and prisoners with a lower educational level (78% versus 68%) were somewhat overrepresented among the refusers.

4.4.2 Measures

Procedural justice

In the questionnaire at T1 and T2, prisoners were asked about their general *perceptions of procedural justice* within the correctional facility (i.e. prisoners were not asked about a specific experience of procedural (in)justice). Procedural justice was assessed according to four subscales: fairness, respect, humanity, and relationships with

officers. Although traditionally, 'relationships with authorities' was not included in measures of procedural justice, prior research in the correctional setting has suggested that prisoners' perceptions of fairness depend to a large extent on their perceptions of officer-prisoner relations (Ahmad, 1996; Liebling, 2004). The four subscales were based on two existing prison perception instruments: the Measurement of Quality of Prison Life (Liebling, 2004) and the Dutch Inmate Survey (Mol & Henneken-Hordijk, 2008). Prisoners indicated on a five-point scale (1-5) to what extent they agreed with statements about their treatment in the correctional facility. A low score indicated a negative judgment; a high score a positive judgment.

Fairness was measured with six items, like "Staff in this correctional facility is consistent in their interpretation of the rules", "This correctional facility is poor at giving prisoners reasons for decisions", and "I am treated differently by staff on the grounds of my race, offense, or any other characteristics". Respect was assessed with three items, such as "This correctional facility is poor at treating prisoners with respect" and "Staff address and talk to me in a respectful manner". The subscale humanity consisted of three items, like "Some of the treatment I receive in this correctional facility is degrading" and "I am treated as a person of value in this correctional facility". Finally, the scale covering relationships with officers was measured with five items, for example "The correctional officers are nice to me" and "I can talk to the correctional officers when I am feeling down". The scales proved reliable, as Cronbach's alpha ranged from 0.71 (humanity at T1) to 0.90 (relationships with officers at T2). On average, prisoners expressed a neutral or slightly positive judgment about these aspects of procedural justice at T1 ($M_{T1} = 2.95-3.22$). Over time, prisoners' perceptions of fairness, respect, humanity, and relationships with officers decreased significantly ($M_{T2} = 2.83-3.14$; $T(784-792) = 2.719-8.391$; $p < 0.05$).

Misconduct

Two prisoner misconduct measures were included in the current study, based on two different data sources. The first measure reflected *self-reported misconduct*. In the questionnaire, prisoners were asked whether they had misbehaved since their arrival in pre-trial detention (T1) and since the first wave of the Prison Project (T2). Prisoners were asked whether they had been (1) verbally aggressive to a staff member, (2) verbally aggressive to a fellow prisoner, (3) physically aggressive to a staff member, (4) physically aggressive to a fellow prisoner, and (5) whether they had received a disciplinary report. We constructed a dichotomous variable (0 = no to all five items; 1 = yes to one or more items).¹⁴ The second measure reflected *registered misconduct*.

¹⁴ We used a dichotomous variable for self-reported misconduct, because we were unable to construct a summative index as the fifth item overlapped with the other four items (i.e. aggressive behavior could also have led to a disciplinary report).

Official prison records were analyzed and it was documented if a prisoner had received a disciplinary report in the period between arrival in pre-trial detention and the first wave of the Prison Project (T1) and between the first and second wave of the Prison Project (T2) (0 = no misconduct; 1 = yes misconduct).^{15,16}

Descriptive statistics of the misconduct measures are reported in Table 4.1. At T1, 131 prisoners (16%) reported rule-violating behavior since their arrival in pre-trial detention. According to official records, 84 prisoners (10%) had received a disciplinary report in this period. At T2, 274 prisoners (35%) reported they had engaged in misconduct since T1. Official records showed that 264 prisoners (33%) had received a disciplinary report in this period. At both T1 and T2, registered rule violations were most often related to substance use or trade (e.g. drug use, alcohol production, drug test defrauding, or trading non-prescribed medicine). Of the prisoners who received a disciplinary report, 50% at T1 and 53% at T2 received (at least) one for substance use or trade. Other disciplinary reports were related to: (a) order and destruction (e.g. disobedience, breaking rules like smoking in non-smoking areas, noise, and damaging goods; 20-30% of the misbehaving prisoners), (b) aggression and violence (e.g. possession of weapons, verbal or physical aggression against staff, and verbal or physical aggression against fellow prisoners; 16-21% of the misbehaving prisoners), and (c) other forms of misconduct (e.g. arson, (attempted) escape, and possession of contraband other than substance and weapons; 30-37% of the misbehaving prisoners).¹⁷

Anger

In the questionnaire at T1, prisoners were asked about their emotions with regard to the way they felt treated within the correctional facility. On a five-point scale (1-5), prisoners were asked to what extent they experienced certain emotions, such as resentment and irritation, when they thought about the way they were treated by correctional authorities. A low score indicated a low level of experiencing the emotion; a high score indicated a high level. The emotions resentment and irritation were used as indicators for a latent variable, *anger*.¹⁸ On average, our prisoners scored 2.06 ($SD = 1.22$) for resentment and 2.44 ($SD = 1.29$) for irritation.

¹⁵ We decided to treat our registered misconduct measure as a dichotomous variable as well because variation was very limited (i.e. two or more misconduct incidents were relatively rare) and for consistency reasons with regard to the self-reported misconduct measure.

¹⁶ Although, in general, T1 took place three weeks after arrival in pre-trial detention and T2 three months after arrival, in reality, this varied somewhat per prisoner. The observation period for registered misconduct was corrected accordingly and based on individual measuring times.

¹⁷ Although the official records gave us information on the specific type of rule violation, we did not analyze the different types of misconduct separately, due to the low prevalence rates.

¹⁸ Prior research has indicated that emotions like anger, resentment, irritation, rage and annoyance load on one factor (Gordijn et al., 2006).

Table 4.1 Descriptive statistics misconduct measures ($N = 806$)

Type of misconduct	Self-reported misconduct N of prisoners (%)	Registered misconduct N of prisoners (%)
Total misconduct T1	131 (16.4%)	84 (10.4%)
Substance use or trade T1		42 (50.0%)
Order and destruction T1		17 (20.2%)
Aggression and violence T1		13 (15.5%)
Other T1		31 (36.9%)
Total misconduct T2	274 (35.0%)	264 (32.8%)
Substance use or trade T2		141 (53.4%)
Order and destruction T2		80 (30.3%)
Aggression and violence T2		56 (21.2%)
Other T2		80 (30.3%)

Note: The sum of the percentages of the different types of registered misconduct exceeds 100% as (a) some prisoners received more than one disciplinary report in the observation period and (b) a disciplinary report can include more than one rule violation (e.g. a prisoner refuses to obey an order, staff addresses this, and, subsequently, the prisoner becomes aggressive).

Background characteristics

The current study controlled for five background characteristics of prisoners. *Prisoners' age* was measured upon arrival in the correctional facility. *Prisoners' ethnicity* was divided into two categories (0 = Dutch background, when both parents were born in the Netherlands; 1 = non-Dutch background, when one or both parents were born outside the Netherlands). *Prisoners' educational level* also consisted of two categories: lower levels of education (primary school or an intermediate secondary education) and middle to higher levels of education (a higher secondary education, an intermediate and higher vocational education or an university education). *Prisoners' self-control* was measured with the Dutch adaptation of the Tangney's Brief Self-Control Scale (Tangney, Baumeister, & Luzio-Boone, 2004). The questionnaire consists of 13 items, like "I am good at resisting temptation" and "I often act without thinking through all the alternatives". On a five-point scale (1-5), prisoners were asked to indicate to what extent the items applied to them. After recoding some of the items, a low score indicated low self-control and a high score indicated high self-control. In our study, the Brief Self-Control Scale showed good internal consistency ($\alpha = 0.83$). Whether or not the prisoners had experienced a *prior imprisonment* was determined using official data of the Dutch Prison Service (0 = no; 1 = yes).

The descriptive statistics showed that the prisoners were on average 30.5 years old ($SD = 10.9$). Around 38% of them had a non-Dutch background. Two-thirds of the prisoners had a low educational level, whereas 32% had a middle or high educational

level. On average, the sample scored 3.17 ($SD = 0.57$) on self-control and more than 50% had been incarcerated previously.

4.4.3 Analytical strategy

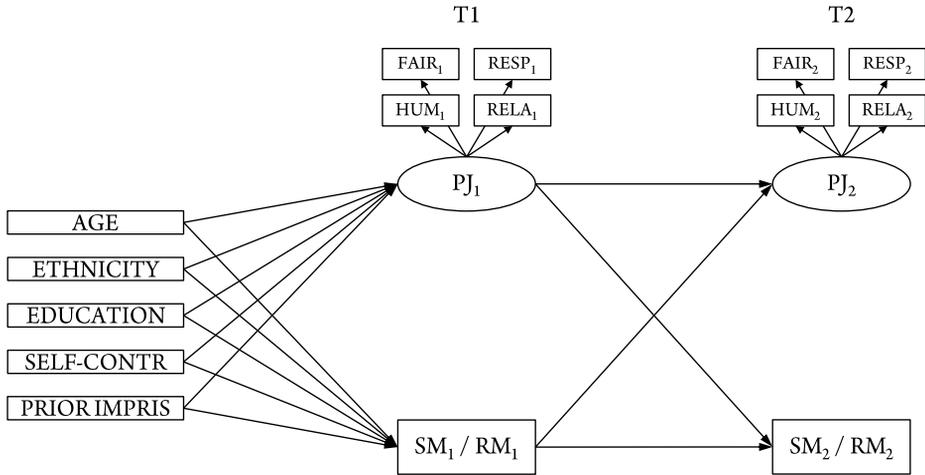
Cross-lagged structural equation models were used to analyze the panel data. For each research question we specified two separate models, one for self-reported misconduct and one for registered misconduct. Figure 4.1 shows the hypothesized models for the first research question and examines the longitudinal associations between procedural justice and misconduct. The scales fairness, respect, humanity, and relationships with officers were used as indicators of latent variables representing prisoners' perceived procedural justice at both waves (PJ_1 and PJ_2). One model included self-reported misconduct at both waves (SM_1 and SM_2), the other model included registered misconduct (RM_1 and RM_2). The models controlled for prisoners' age, ethnicity, educational level, self-control, and prior imprisonment. Figure 4.2 shows the hypothesized models for the second research question and examines whether anger mediates the effect of procedural justice on misconduct. The items resentment and irritation were used as indicators of a latent variable representing prisoners' anger about the treatment received in the facility (ANG_1).

In order to fit a structural equation model, the first step is to fit the measurement model to check whether the hypothesized latent constructs are represented by the observed indicators. This condition is met when the measurement model shows an adequate fit with the data and the factor loadings are above 0.50 (Hair, Anderson, Tatham, & Black, 1998). During the second step, the structural model is constructed in which the variables are related to one another (Kline, 2011).

To test the hypotheses of the first research question, we compared four competing models for self-reported misconduct and for registered misconduct: stability model M_1 without any cross-lagged paths (rejecting both Hypotheses 1a and 1b), model M_2 with a cross-lagged path from procedural justice at T1 to misconduct at T2 (supporting Hypothesis 1a), model M_3 with a cross-lagged path from misconduct at T1 to procedural justice at T2 (supporting Hypothesis 1b), and model M_4 with both a cross-lagged path from procedural justice at T1 to misconduct at T2 and a cross-lagged path from misconduct at T1 to procedural justice at T2 (supporting both Hypotheses 1a and 1b). Using chi-square difference tests, we examined which model fitted the data best.

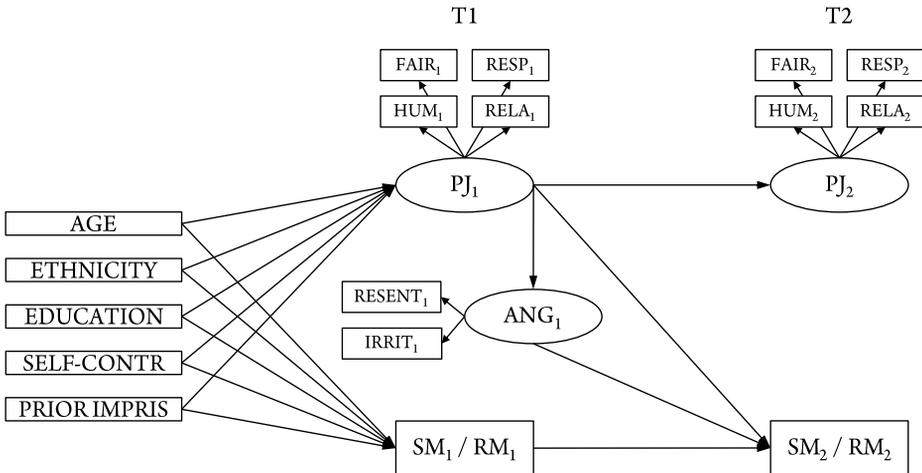
To test the second research question, we compared two competing models for self-reported misconduct and for registered misconduct: model M_5 in which anger *fully* mediates the effect of procedural justice on misconduct, and model M_6 in which

Figure 4.1 Hypothesized structural equation models for the longitudinal associations between prisoners' perceived procedural justice and misconduct



Note: PJ = procedural justice; FAIR = fairness; RESP = respect; HUM = humanity; RELA = relationships with officers; SM = self-reported misconduct; RM = registered misconduct.

Figure 4.2 Hypothesized structural equation models for the mediating role of anger in the effect of prisoners' perceived procedural justice on misconduct



Note: PJ = procedural justice; FAIR = fairness; RESP = respect; HUM = humanity; RELA = relationships with officers; ANG = anger; RESENT = resentment; IRRIT = irritation; SM = self-reported misconduct; RM = registered misconduct.

anger *partly* mediates the effect of procedural justice on misconduct.¹⁹ Again, chi-square difference tests were used to explore which model fitted the data best.

All analyses were conducted with Mplus 7.0 (Muthén & Muthén, 2012). Full information maximum likelihood (FIML) estimation was used to handle missing values (Allison, 2003; Schafer & Graham, 2002).²⁰ Logistic regression was applied for the endogenous dichotomous misconduct variables, whereas linear regression was used for the endogenous continuous procedural justice variables.

4.5 Results

4.5.1 Measurement model

To assess the quality of the measurement model, a confirmatory factor analytic (CFA) model with the three latent constructs (PJ_1 , PJ_2 , and ANG_1) and their indicators was employed. The goodness-of-fit indices indicated that the model fitted the data well ($\chi^2(32) = 232.10$, $p < 0.05$; comparative fit index = 0.97; Tucker-Lewis index = 0.95; root mean square error of approximation = 0.08; standardized root mean square residual = 0.02). All indicators loaded significantly on their latent constructs, with standardized factor loadings well above 0.50 (PJ_1 0.81-0.88; PJ_2 0.83-0.93; ANG_1 0.85-0.86).

Table 4.2 shows the composite reliabilities and correlations of the three latent variables. The composite reliability ranged from 0.85 to 0.92, indicating good to excellent internal consistency. The correlations show, as expected, associations between procedural justice overtime ($r = 0.67$), and procedural justice and anger ($r = -0.75$ and -0.50). Although the correlation between PJ_1 and ANG_1 ($r = -0.75$) corroborates our hypothesis, this correlation is so high that it could be questioned whether the indicators of ANG_1 measure the same concept as the indicators of PJ_1 . In other words, it can be questioned whether discriminant validity exists between these two variables, especially since they were measured at the same time. We therefore estimated the Average Variance Extracted (AVE), which estimates the variance in the indicators explained by the common latent construct. Discriminant validity is obtained if the AVE for latent construct A and the AVE for latent construct B are both larger than the shared variance (i.e. squared correlation) between A and B (Fornell & Larcker,

¹⁹ Anger fully mediates the effect when procedural justice influences anger, anger influences misconduct, and there no longer is a direct effect of procedural justice on misconduct. Anger partly mediates the effect when procedural justice influences anger, anger influences misconduct, but there still is also a direct effect of procedural justice on misconduct as well.

²⁰ The sample decreased from 806 to 773 due to missing values on exogenous variables which were not handled by FIML.

1981). This means that the indicators have more in common with the construct they are associated with than they do with the other construct. Table 4.2 reveals that all AVE estimates are larger than the squared correlation estimates. For example, AVE_{PJ_1} (0.71) and AVE_{ANG_1} (0.74) are both larger than the squared correlation between PJ_1 and ANG_1 ($-0.75^2 = 0.56$). Thus, discriminant validity between the three constructs is supported and we can conclude that the indicators of ANG_1 do not measure the same concept as the indicators of PJ_1 .

In sum, the results of the measurement model show that the latent constructs are well represented by its observed indicators. Therefore, we can proceed with the second step: constructing the structural models.

Table 4.2 Composite reliability, average variance extracted and correlations of latent variables ($N = 806$)

	Composite reliability	Average variance extracted	Procedural justice T1	Procedural justice T2
Procedural justice T1	0.91	0.71		
Procedural justice T2	0.92	0.75	0.67 ***	
Anger T1	0.85	0.74	-0.75 ***	-0.50 ***

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.00$

4.5.2 Longitudinal association between prisoners' perceived procedural justice and misconduct

To answer the first research question and to explore the longitudinal associations between procedural justice and misconduct, we tested the best fitting model among four nested alternatives for both self-reported and registered misconduct. Table 4.3 shows the four models and their comparisons for each misconduct measure. Largely, the same pattern emerged for both misconduct measures; therefore, we will discuss the results simultaneously. The first chi-square difference tests compared the stability model without any cross-lagged paths (M_1) with the model with a cross-lagged path of procedural justice at T1 to misconduct at T2 (M_2). For both the self-reported and the registered misconduct model, this comparison yielded a significant chi-square difference (SM: $\Delta\chi^2(1) = 9.02$; $p < 0.05$; RM: $\Delta\chi^2(1) = 3.88$; $p < 0.05$). This means that model M_2 fitted the data better than model M_1 did. In other words, Hypothesis 1a is supported; there is evidence that procedural justice at T1 predicts misconduct at T2. The second chi-square difference tests showed that the difference between the stability model (M_1) and the model with a cross-lagged path from misconduct at T1 to procedural justice at T2 (M_3) was non-significant (SM: $\Delta\chi^2(1) = 0.00$; $p > 0.05$; RM: $\Delta\chi^2(1) = 0.82$; $p > 0.05$). Thus, model M_3 did not show a significant increase in model

Table 4.3 Results of structural model comparisons for longitudinal associations ($N = 773$)

Model	Log likelihood	χ^2 (df)	Comparison	$\Delta\chi^2$ (df)
Self-reported misconduct				
M_1 : No cross-lagged	-5,253.76	10,507.52 (38)		
M_2 : Cross $PJ_1 - SM_2$	-5,249.25	10,498.50 (39)	$M_1 - M_2$	-9.02 (1) **
M_3 : Cross $SM_1 - PJ_2$	-5,253.76	10,507.52 (39)	$M_1 - M_3$	0.00 (1)
M_4 : Both cross	-5,249.25	10,498.50 (40)	$M_1 - M_4$	-9.02 (2) *
			$M_2 - M_4$	0.00 (1)
Registered misconduct				
M_1 : No cross-lagged	-5,224.63	10,449.26 (38)		
M_2 : Cross $PJ_1 - RM_2$	-5,222.69	10,445.38 (39)	$M_1 - M_2$	-3.88 (1) *
M_3 : Cross $RM_1 - PJ_2$	-5,224.22	10,448.44 (39)	$M_1 - M_3$	-0.82 (1)
M_4 : Both cross	-5,222.27	10,444.54 (40)	$M_1 - M_4$	-4.72 (2)

Note: PJ = procedural justice; SM = self-reported misconduct; RM = registered misconduct; $\chi^2 = -2$ Log likelihood

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.00$

fit and Hypothesis 1b was rejected: Prisoners’ self-reported and registered misconduct at T1 did not influence their perceptions of procedural justice at T2.

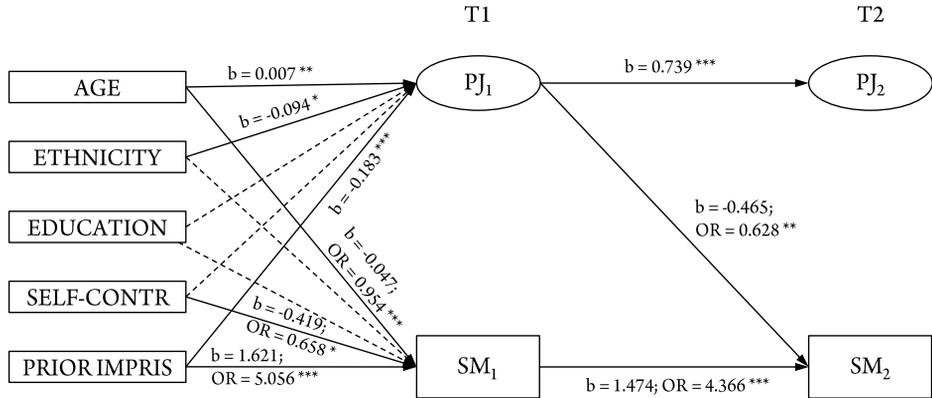
The comparison between the stability model (M_1) and the model with both cross-lagged paths (M_4) was different for self-reported and registered misconduct. For registered misconduct, the chi-square test was non-significant (RM: $\Delta\chi^2(2) = 4.72$; $p > 0.05$), implying that model M_1 fitted the data better than model M_4 did. For self-reported misconduct, a significant chi-square difference test was revealed (SM: $\Delta\chi^2(2) = 9.02$; $p < 0.05$), indicating that model M_4 described the data better than model M_1 did. Since both model M_2 and M_4 fitted the data better than the stability model (M_1) for self-reported misconduct, the one cross-lagged model (M_2) was compared with the fully cross-lagged model (M_4). The chi-square difference test yielded no significant improvement (SM: $\Delta\chi^2(1) = 0.00$; $p > 0.05$), favoring the more parsimonious model with only one cross-lagged effect (M_2) instead of two cross-lagged effects (M_4).

In sum, after comparing the four models for both self-reported and registered misconduct, the conclusion for both misconduct measures was the same: Model M_2 with a cross-lagged effect of procedural justice at T1 on misconduct at T2 was the best fitting model and described the data best.

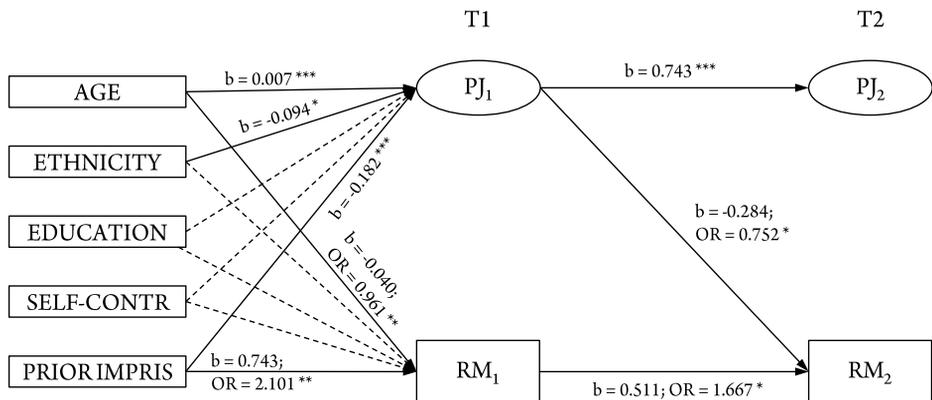
The results of the parameter estimates of model M_2 for self-reported and registered misconduct are reported in Figure 4.3. When we first take a look at the self-reported misconduct model, findings support Hypothesis 1a and show that perceptions of procedural justice predicted subsequent self-reported misconduct. Prisoners who felt that they had been treated fairly and respectfully within the correctional facility at T1

Figure 4.3 Results of final models for the longitudinal associations between prisoners' perceived procedural justice and misconduct ($N = 773$)

Self-reported misconduct model



Registered misconduct model



Note: In these simplified versions of the models, indicators of the latent variables have been omitted for clarity. Dashed lines represent paths that were included in the model, but were non-significant. Unstandardized coefficients (b) and odds ratio's (OR) of the significant paths are shown. PJ = procedural justice; SM = self-reported misconduct; RM = registered misconduct.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.00$

reported less rule-breaking behavior at T2 ($b = -0.465$). This effect was found even after controlling for prior misconduct at T1. Furthermore, findings showed that older prisoners ($b = 0.007$), prisoners with a Dutch background ($b = -0.094$), and prisoners who had not been incarcerated previously ($b = -0.183$) experienced a higher level of procedural justice at T1. Finally, older prisoners ($b = -0.047$), prisoners with higher levels of self-control ($b = -0.419$), and prisoners who had not been incarcerated in the past ($b = 1.621$) reported less misconduct at T1.

The results of the registered misconduct model correspond to the findings of the self-reported misconduct model and support Hypothesis 1a. While controlling for prisoners' prior misconduct at T1, findings showed that prisoners who experienced a higher level of procedural justice at T1 were less often charged with violating institutional rules at T2 ($b = -0.284$). Furthermore, older prisoners ($b = 0.007$), prisoners with a Dutch background ($b = -0.094$), and prisoners who had not been incarcerated previously ($b = -0.182$) reported higher levels of procedural justice at T1. In addition, older prisoners ($b = -0.040$) and first-time prisoners ($b = 0.743$) were less likely to have received a disciplinary report at T1.²¹

4.5.3 Mediating role of anger

To answer the second research question and to explore the mediating role of anger in the procedural justice-misconduct relationship, we tested the best fitting model among two nested alternatives for self-reported and registered misconduct. Table 4.4 shows the two models and their comparison for each misconduct measure. For self-reported misconduct, chi-square increased in the partly mediated model M_6 compared to the fully mediated model M_5 , indicating a decrease in model fit instead of an improvement (SM: $\Delta\chi^2(1) = -13.28$). For registered misconduct, the chi-square difference test showed no significant improvement for the partly mediated model M_6 compared to the fully mediated model M_5 (RM: $\Delta\chi^2(1) = 0.38$; $p > 0.05$). These results indicate that anger fully mediated the effect of procedural justice on both self-reported and registered misconduct, as procedural justice at T1 was no longer a significant predictor of misconduct at T2 when anger was included into the model.

Table 4.4 Results of structural model comparisons for mediating effect of anger ($N = 773$)

Model	Log likelihood	χ^2 (df)	Comparison	$\Delta\chi^2$ (df)
Self-reported misconduct				
M_5 : Fully mediated	-7,169.25	14,338.50 (46)		
M_6 : Partly mediated	-7,175.89	14,351.78 (47)	$M_5 - M_6$	-13.28 (1)
Registered misconduct				
M_5 : Fully mediated	-7,144.43	14,288.86 (46)		
M_6 : Partly mediated	-7,144.24	14,288.48 (47)	$M_5 - M_6$	0.38 (1)

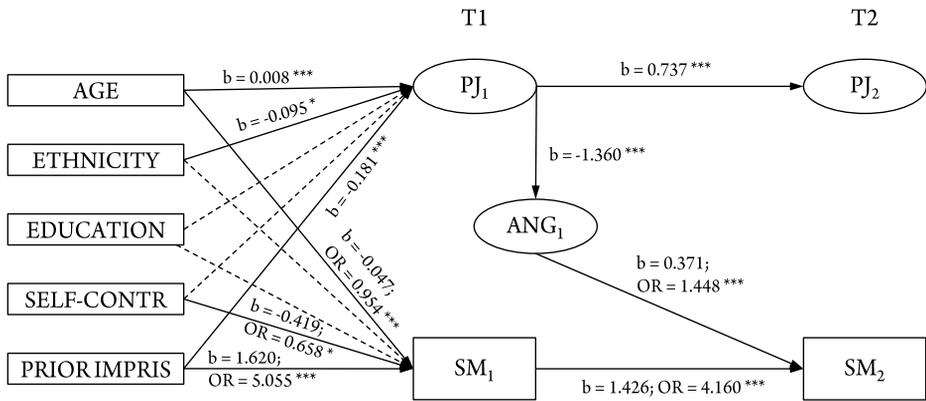
Note: $\chi^2 = -2$ Log likelihood
 * $p < 0.05$; ** $p < 0.01$; *** $p < 0.00$

²¹ The Prison Project conducted a third wave (T3) among the prisoners, nine months after arrival in pre-trial detention. We decided not to include T3 in the current study, since the sample size was too small to employ cross-lagged models including all three waves ($N = 185$). Nonetheless, cross-lagged models using only T2 and T3 did show the same results: A cross-lagged effect of procedural justice at T2 on self-reported and registered misconduct at T3, while no significant reversed effect occurred.

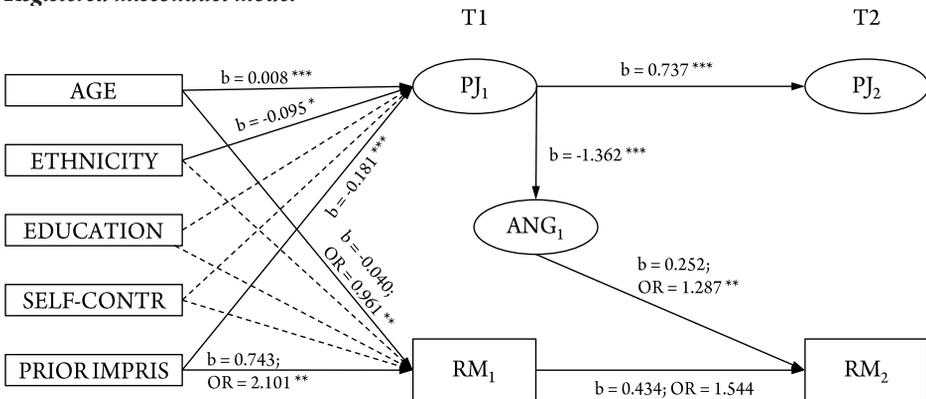
The results of the parameter estimates of model M₅ for both types of misconduct are reported in Figure 4.4. In both models, findings showed that anger fully mediated the effect of procedural justice at T1 on misconduct at T2. Thus, in support of Hypothesis 2, prisoners who felt treated in a procedurally unfair manner in the correctional facility were more likely to experience anger about their treatment (SM: $b = -1.360$; RM: $b = -1.362$). Those who harbored more anger were, in turn, more likely to engage in rule violations (SM: $b = 0.371$; RM: $b = 0.252$).

Figure 4.4 Results of final models for the mediating role of anger in the effect of prisoners' perceived procedural justice on misconduct ($N = 773$)

Self-reported misconduct model



Registered misconduct model



Note: In these simplified versions of the models, indicators of the latent variables have been omitted for clarity. Dashed lines represent paths that were included in the model, but were non-significant. Unstandardized coefficients (b) and odds ratio's (OR) of the significant paths are shown. PJ = procedural justice; ANG = anger; SM = self-reported misconduct; RM = registered misconduct.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.00$

4.6 Discussion

The aim of the present study was twofold. First, the longitudinal association between prisoners' perceptions of procedural justice and their misconduct was examined. Second, the mediating role of anger in this relationship was explored.

The results suggested a causal relationship between prisoners' perceptions of procedural justice and their subsequent compliance behavior. While controlling for prior misbehavior, prisoners who felt treated fairly and humanely in the correctional facility at T1 were less likely to report they had engaged in misconduct at T2 and were less likely to have received a disciplinary report at T2. No support was found for the reversed effect: Prisoners who misbehaved at T1 did not perceive their treatment in the correctional facility as less procedurally just at T2. Furthermore, findings revealed a mediating effect for negative emotions. Prisoners who felt treated unfairly by correctional authorities were more likely to experience anger, and those who felt angry about their treatment were more likely to engage in subsequent misconduct.

The finding that perceptions of procedural justice affected prisoners' compliance behavior is in line with procedural justice theory (Leventhal, 1980; Lind & Tyler, 1988; Thibaut & Walker, 1975; Tyler, 1990) and previous research. Prior studies in law enforcement settings (e.g. police and court settings) have shown that people are more likely to obey the law and comply with criminal justice authorities' rules and decisions when they have been treated with fairness and respect by these authorities (e.g. McGrath, 2009; Paternoster et al., 1997; Sunshine & Tyler, 2003; Tyler, 2001; Tyler & Fagan, 2008). In general, the limited number of prior empirical studies within the correctional context also confirmed that an unjust treatment is related to a higher prevalence of prisoners' misconduct (e.g. Reisig & Mesko, 2009; Sparks & Bottoms, 1995). Whereas prior research has been unable to rule out the possibility of a reciprocal relationship between procedural justice and prisoners' misconduct, the present study revealed that, by using a cross-lagged design, the relationship is one-directional: A fair and dignified treatment of prisoners predicts prisoners' misconduct, not the other way around (as well).

The finding that the misconduct of prisoners did not affect their perception of procedural justice is notable, as it is easy to imagine that correctional staff treat prisoners who misbehave subsequently less fairly and respectfully. However, the current study has not found support for this. Rule-breaking prisoners and rule-abiding prisoners felt treated in the same manner, suggesting a neutral and consistent approach by Dutch correctional staff.

In line with procedural justice studies in non-correctional settings (e.g. Chebat & Slusarczyk, 2003; VanYperen et al., 2000), this study provided support for the mediating role of anger: Perceptions of unfairness among prisoners caused feelings

of anger, which in turn led to misbehavior. Similar to Murphy and Tyler (2008), it was found that when anger was included in the analysis, procedural justice was no longer a significant predictor of prisoners' compliance (i.e. anger fully mediated the relationship).

Since procedural justice theory currently does not include the mediating role of emotions, hypotheses in the present study were based on equity theory (Adams, 1965) and general strain theory (Agnew, 1992). However, these theories both have a somewhat different focus than procedural justice theory. Findings of the present study have led us to believe that emotions, and especially anger, should play a role in theoretical models of procedural justice as well.

Murphy and Tyler (2008) propose to complement the group-value model (Lind & Tyler, 1988) with appraisal theories of emotions (Mackie, Devos, & Smith, 2000) to explain why anger mediates the relationship between procedural justice and compliance. The group-value model assumes that procedural justice is important to people because it communicates that one is a valued member of society; it reaffirms people's identification with and belonging to a social group. Conversely, if people feel treated unfairly, they will feel marginalized, disrespected, and excluded from the group. As a result, it can threaten one's identity as a valued group member and can compromise one's self-worth. Appraisal theories of emotions conceptualize emotions as reactions to a situation or event that includes cognitions. According to this framework, anger generally results "from appraisals that the other has harmed the self" (Mackie et al., 2000, p. 602). In turn, such anger gives rise to the tendency to retaliate against that other person. Combining both theoretical models would suggest that people who perceive their treatment by an authority as unfair feel that their identity as a valued group member is threatened and harmed. Such an identity threat may provoke feelings of anger, which, in turn, may provide an impetus for misbehavior.

Some limitations of the present study should be highlighted. A first concern relates to the measuring of procedural justice. To date, there is no established standard to measure procedural justice, and in the past researchers have used different subscales and items (e.g. Hinds & Murphy, 2007; Reisig & Mesko, 2009; Sprott & Greene, 2010; Sunshine & Tyler, 2003). Procedural justice is often conceptualized as having multiple dimensions, like 'participation', 'neutrality', 'trust' and 'treatment with dignity and respect' (Peterson-Badali et al., 2007; Tyler, 2000), or 'fairness of decision-making' and 'quality of treatment' (Sunshine & Tyler, 2003). Others have claimed, however, that procedural justice is a one-dimensional construct (Henderson et al., 2010; Reisig et al., 2007). These differences in measures may be explained by the fact that the exact manner in which a procedurally just treatment can be enacted depends on the setting (Jackson et al., 2010). The procedural justice measure in the present study was based on instruments specifically developed for the correctional context. In line with the

results of our factor analysis, procedural justice was operationalized as one (latent) construct. Although our results are in line with theory and prior research, measuring procedural justice in a different way could have led to different results.

Second, our examination of the mediating role of anger has been cross-sectional in nature, as both procedural justice and anger were measured at the same time (i.e. T1). Ideally, our study should have included three waves, with measures of procedural justice at T1, anger at T2, and misconduct at T3. Since this was not the case, we cannot be sure that anger truly mediates the effect of procedural justice on prisoners' misconduct. However, the results of the present study are in line with theory and prior research, which suggest a mediating role for anger. Furthermore, it would be useful to reconsider the measure of anger. Although discriminant validity was obtained, the current study did reveal a high correlation between procedural justice and anger. To reduce the overlap between the constructs, it might be better to ask participants about their emotions concerning the relevant authority (like Murphy & Tyler, 2008), instead of their emotions specifically regarding the (un)just treatment (like the current study; Gordijn et al., 2006; VanYperen et al., 2000). Possibly, this is a more suitable measure of anger, as it is somewhat more disconnected from the treatment itself.

Third, our measurement of self-reported misconduct was limited, since it did not capture all types of misconduct. One item asked prisoners whether or not they had received a disciplinary report, the other four items related to verbally or physically aggressive behavior against staff or fellow prisoners. As a result, undiscovered and unregistered, non-aggressive misconduct was not included in our self-reported misconduct measure. Future research could benefit from including a more comprehensive misconduct measure, for instance, like the measure Reisig and Mesko (2009) used, which also included items on stealing, destruction, disobedience, and possession of contraband. Additionally, an interesting avenue for further research would be to differentiate between different types of misconduct. A procedurally just treatment may have a more pronounced effect on, for instance, aggressive misconduct and disobedience than on drug-related misconduct, as addicts may use drugs regardless of how they are treated by correctional staff.

Fourth, the present study was conducted among male prisoners held in Dutch penitentiary institutions. As described earlier, the Netherlands is still known for its relatively mild correctional policy (Dervan, 2011; Kruttschnitt & Dirkzwager, 2011). Compared to many other countries, prison conditions in the Netherlands are rather liberal and decent. Although our results are in line with procedural justice theory and prior studies in non-correctional settings in Western countries, they may not be generalizable to correctional settings where correctional authorities are overly punitive and corrupt. For instance, research in Ghana by Tankebe (2009) showed that citizens comply, not because they are treated in a procedurally just manner by the

police, but out of fear. The Ghana police seeks to secure compliance through force, fear and intimidation. Future longitudinal studies are needed that will replicate the current study among different correctional populations, settings and countries, to conclude whether the results are generalizable.

Finally, prisoners suspected of a property offense, second-generation immigrants and prisoners with a lower educational level were somewhat underrepresented in the sample, due to non-response at T1 and attrition at T2. This may have introduced some bias. However, the size of the underrepresentation was relatively small; we expect, therefore, that this did not significantly affect the generalizability of the results.

The limitations notwithstanding, we feel that the present study contributed to the procedural justice literature by focusing on the correctional context, using a cross-lagged design, using two independent data sources, and examining the mediating role of anger. Our results have implications for correctional policy and practice. Prisoners' compliance is important for the manageability of correctional facilities. In fact, in spite of the security and control arrangements in penitentiary institutions, prison order depends to a large extent on the cooperation of the prisoners (Jackson et al., 2010). Without such cooperation, correctional facilities would be far more oppressive, disorganized and violent, with evident consequences for the effective operation and costs of penitentiary institutions, as well as the safety of staff and prisoners.

Our study indicates that correctional authorities can enhance prisoners' compliance and prison order by treating prisoners with fairness, respect, and dignity. Procedural justice literature suggests that key elements in the creation of more fair correctional practices are: (a) staff should act based on rules and should consistently apply those rules without prejudice and bias, (b) prisoners should be treated with respect and dignity, and (c) prisoners should be given the opportunity to state their case and highlight their view before decisions are made by staff (Jackson et al., 2010; Tyler, 2000; Tyler & Lind, 1992). In staff training, Prison Services and prison management should educate correctional staff on the importance of a procedurally just treatment of prisoners and on these strategies to increase fair and humane correctional practices.

We realize that the procedural justice approach contradicts long-standing ideas about deterrence as the best strategy to manage prisoners. In addition, the public may feel that prisoners do not deserve a fair and humane treatment, and may call for them doing 'hard time'. However, the current study provides empirical evidence that a procedurally just treatment of prisoners decreases the level of misconduct in correctional facilities. Also, treating prisoners decently in detention may increase the likelihood of their success upon release, as it promotes rehabilitation (Johnson, 1996; Liebling, 2004). Moreover, prisoners are human beings; being treated with respect and dignity is a fundamental right of all human beings (Kant, 1964; Rousseau, 1988). Sending offenders to decent prisons is, therefore, both the effective and humane thing to do (Johnson, 1996).

