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The Effect of Sanction Severity and its Interaction with Procedural Justice

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Abstract

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Recent scholarship suggests that detention may have differential effects depending on situational factors. This longitudinal study tests an integrative theoretical framework with the aim to identify the conditions under which detention deters from subsequent rule-violating behavior. We examined whether the effects of experienced sanction severity on subsequent misconduct/reoffending behavior are dependent on procedural justice perceptions among Dutch adults in detention ($n = 763$ and $n = 765$). The deterrent effect of sanction severity on misconduct was dependent on procedural justice. Increased sanction severity only deterred from subsequent misconduct when treatment was perceived as procedurally neutral to just. For individuals that were detained for the first time, a similar interaction effect was observed for

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their reoffending behavior. The results support the added value of integrating deterrence theory with situational characteristics (i.e., procedural justice) to explain sanctioning effects and suggest that correctional staffs' relationships with individuals in detention can contribute to order in prison and beyond.

Keywords: Deterrence; Recidivism; Procedural justice; Longitudinal; Prison;

Introduction

Crime results in considerable economic and social costs for individuals and society at large (Cullen et al., 2011; Gifford, 2019). One way societies try to reduce these negative consequences of crime is by depriving people who committed a crime of their freedom (Scott, 2007). One of the rationales behind this sanction is that detention is intended to reduce future criminal behavior (Chalfin & McCrary, 2017). An undesired by-product of detention is misconduct within correctional facilities, which interferes with the safety in prisons (Jackson et al., 2010), and can result in health problems and decreased well-being of both detained individuals (e.g., Baidawi et al., 2016) and correctional officers (e.g., Steiner & Wooldredge, 2015; Cheeseman et al., 2011). Misconduct has also been linked to higher post-release reoffending rates (Cochran & Mears, 2017). At present, both post-release recidivism and in-prison misconduct are relatively common (Abbiati et al., 2019; Yukhnenko et al., 2019), which suggests that more information is needed on how these behaviors can be successfully reduced. The current study focusses on the effects of the perceived severity of detention on subsequent misconduct during detention and their post-release reoffending. The findings of the study will be valuable for the development of effective policies to reduce these costly and unwanted behaviors (Gifford, 2019).

The idea that sanctions will reduce crime and other rule-violations originates from the deterrence theory (Beccaria, 1764/1819; Bentham, 1970/1982), which assumes that severe sanctions such as detention will lower the probability of reengaging in criminal behavior

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because it increases the costs associated with committing crimes (Chalfin & McCrary, 2017). Empirical research on the effects of (the experienced severity of) detention, however, shows mixed results ranging from an overall null effect (e.g., Cullen et al., 2011; Nagin & Snodgrass, 2013; Raaijmakers et al., 2017) or at best a weak deterrent effect on reoffending (Crank & Brezina, 2013; Meade et al., 2013), to a mild criminogenic effect of detention (e.g., Cullen et al., 2011; Wermink et al., 2010). In sum, prior findings indicated that detention or the experienced severity of detention on its own does not consistently reduce subsequent criminal behavior.

Partly due to these mixed results, the question of whether sanctions deter shifted towards the question “... under what conditions or for which kind of persons they [deter] ...” (Piquero et al., 2011, p. 336). Following this line of reasoning, deterrent and criminogenic effects of detention may not be mutually exclusive but rather detention may have differential effects on detained individuals depending on their individual and/or situational characteristics (Cullen et al., 2011; Sherman, 1993; Tomlinson, 2016). One situational characteristic that may influence the effect of (the experienced severity of) detention on subsequent misconduct and reoffending is how people feel treated by law enforcement authorities, and more specifically, to what extent they feel treated in a procedurally just way. Recent empirical findings indicated that the deterrent effect of severe sanctions may indeed be dependent on procedural justice (Augustyn & Ward, 2015; Verboon & van Dijke, 2011, 2012). Sanctioning was found to be associated with higher rates of offending when treatment was experienced as unjust, but not when treatment was experienced as just (Augustyn & Ward, 2015). Therefore, sanctioning combined with a fair treatment may contribute to the safety both inside and outside correctional facilities. However, to the best of our knowledge, Augustyn and Ward's (2015) study is the only study that examined the interaction effect of sanctioning and procedural justice among justice-involved individuals (i.e., youth). This shows that, while the

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concept of sanction severity is influential in forming the criminal justice system and its decision-making (Paternoster, 2010), many questions about its effects and especially about its interaction effect with procedural justice remain unanswered for populations that are responsible for the most severe crime (i.e., detained individuals).

The current longitudinal study aims to fill this gap in knowledge by examining the effect of the perceived severity of detention (sanction severity) and its dependency on procedural justice on subsequent rule-violating behavior (i.e. misconduct and reoffending) within a sample of Dutch males in detention. Analyses were based on longitudinal data from the Prison Project, which included detailed information on measures of subjective severity of detention and perceived procedural justice (3 weeks after arrival in detention), self-reported misconduct during detention (3 months after arrival in detention) and self-reported reoffending post-release (6 months post-release).

More information on the effects of sanction severity and its dependency on perceptions of procedural justice will help to identify conditions under which the experienced severity of detention deters from subsequent criminal behavior. Identifying such conditions among individuals who are detained is important for several reasons. First, insight in the conditions under which the perceived sanction severity reduces subsequent misconduct and post-release reoffending is valuable for the development of policy strategies aimed at facilitating and improving the conditions that deter individuals that served time for a crime, which in turn may contribute to the management, safety and well-being in prisons as well as to the safety in society at large. Second, examining the combined effect of the experienced severity of detention and procedural justice may be particularly relevant among individuals in detention because (a) they are submitted to a severe sanction, (b) they have frequent and relatively prolonged contacts with legal authorities during detention (i.e. the correctional officers) when compared to individuals with short police or court encounters (Maguire et al.,

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2019), and (c) they have a relatively high risk of reoffending and are responsible for the more severe crimes (Petersilia, 2011; Yukhnenko et al., 2019). Therefore, the effects of the experienced severity of detention and its interaction with procedural justice on subsequent criminal behavior may be particularly salient among this group, and reducing crime in this group will substantially contribute to lowering the burden of crime on individuals and societies (Cullen et al., 2011; Gifford, 2019).

Theoretical Background

Deterrence Theory

The main focus of this study is on the effects of (perceived) sanction severity, which is one of the three core components of the traditional deterrence theory. Deterrence theory assumes that people are primarily concerned with the outcomes of their encounters with legal authorities. Furthermore, deterrence theory is based upon the notion that individuals will balance the costs and benefits of their behavior and subsequently make a rational choice on how to behave (Chalfin & McCrary, 2017). A behavioral choice will be perceived as costlier when it likely and swiftly results in more severe punishment (Apel & Nagin, 2017; Chalfin & McCrary, 2017; Tomlinson, 2016). In this study, we focus on the latter, namely sanction severity. According to deterrence theory, a punishment that is perceived as more severe will alter an individual's behavioral choice towards a lower probability of reengaging in such behavior. Translated to the correctional context this means that based on the deterrence theory individuals who experience their detention as more severe are expected to misbehave and reoffend less (i.e., specific deterrence).

Interaction Effect

In this paper, we also examine to what extent the effects of sanction severity are dependent on how individuals' feel treated by legal authorities (procedural justice). Actions are considered to be procedurally just when authorities apply rules in a fair, unbiased, and ethical (e.g.,

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respecting one's rights) way, make decisions based on sufficient information, and offer individuals the opportunity to present their own case (Tyler, 1988). While, at present, there is no clear theory regarding the interaction effect of sanction severity and procedural justice on subsequent misconduct and reoffending, some scholars have proposed ideas for potential mechanisms that may explain why the effects of sanction severity may depend on perceptions of procedural justice. First, it has been suggested that the perceived treatment by criminal justice actors may influence the experienced relevance of a sanction, which in turn may influence its effects on behavior. For instance, when a treatment is experienced as unjust, individuals may believe that the arrest was related to factors other than the offending behavior (e.g., ethnicity) and consequently may see the sanction as irrelevant (Huizinga & Henry, 2008). So, a sanction that is experienced as unjust may lose its deterrent effect on misconduct and reoffending.

Second, the group engagement model of procedural justice theory may offer a theoretical framework for the interaction effect of procedural justice and sanction severity (Tyler & Blader, 2003). A sanction imposed by a group (e.g., the Dutch society) that is experienced as procedurally unjust may imply that group membership is not beneficial on the long-term. This may weaken an individual's social identification with that group and may decrease the likelihood of compliance with the laws of that group and vice versa. Again, this theoretical idea may explain a diminished deterrent effect when treatment is experienced as unjust, but does not offer an explanation for any criminogenic effects of sanctioning.

Third, Verboon and van Dijke's (2011) research offers another potential explanation for the dependency of the effects of sanction severity on the perception of an authority (i.e., procedural justice). They emphasized the importance of peoples' moral (dis)approval of authorities' behavior. They suggested that severe sanctions affect how the behavior of authorities is evaluated (either morally approving or disapproving), but that the direction of

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this effect depends on perceptions of procedural justice. A severe sanction in combination with a procedurally just treatment was linked to moral approval of that authorities' behavior. In contrast, a severe sanction in combination with a procedurally unjust treatment was linked to moral disapproval of that authorities' behavior. Their findings also indicated that moral (dis)approval explains why the effects of severe sanctions differ depending on how the treatment is perceived. Severe sanctions in combination with an unfair treatment decrease law obedience because the behavior of the authority who imposes the sanction is morally disapproved and vice versa. As such, this idea offers a possible explanation for the opposing findings (deterrent and criminogenic effects) within existing deterrence research.

Prior Research

Effects of Sanction Severity

Most prior studies examining the effects of sanction severity on reoffending and misconduct used an objective measure for sanction severity, and for example compared the effects of detention to alternative sanctions or examined the effects of detention length. A narrative review summarizing existing studies and systematic reviews on the effects of detention on subsequent criminal behavior concluded that overall there is little evidence that detention deters from reoffending and that there are some indications that detention may have criminogenic effects (Cullen et al., 2011). For example, one of the studies that was discussed by Cullen and colleagues (2011) compared the recidivism rates of Dutch adults sentenced to either community service or short-term detention using a matched samples approach and found higher recidivism rates for those sentenced to detention while accounting for a variety of background variables (Wermink et al., 2010). Similarly, a recent study conducted in the USA demonstrated that adults sentenced to jail recidivated more compared to adults sentenced to probation (Caudy et al., 2018).

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Contrary to the above, a few studies indicated a deterrent effect of detention. For example, Bhati and Piquero (2007) studied the offending trajectories of a sample of imprisoned US adults and found that in 40% of the cases detention deterred from future offending and in only 4% criminogenic effects occurred. In line with this, studies among justice-involved juveniles and young adults demonstrated that detention deterred these youngsters from subsequent criminal involvement (Hjalmarsson, 2009; Walters, 2021). Yet other studies among imprisoned adults that used methodological strong designs (e.g. a matching or instrumental variable design) to examine the effect of detention or detention length observed either weak or no deterrent effects on recidivism (Meade et al., 2013; Nagin & Snodgrass, 2013).

Results are also mixed among the very few and more recent studies that started to incorporate the subjective component of sanction severity. While Crank and Brezina (2013) found a deterrent effect among of perceived sanction severity on intentions to desist from committing new crimes among incarcerated individuals, Raaijmakers and colleagues (2017) observed a deterrent effect of the experienced severity of detention on reconvictions but this effect largely disappeared once background characteristics were taken into account. In sum, current findings on the effects of (the experienced severity of) detention on subsequent behavior are ambiguous.

The Interaction Effect of Sanction Severity and Procedural Justice

So far, few studies investigated the interaction effect of sanction severity and procedural justice. An early study on the effects of sanctioning indicated that getting arrested compared to receiving a warning increased recidivism rates among suspects of domestic violence, but only for those who perceived their treatment by police officers as unjust. This study did not show a significant interaction effect of detention length and perceptions of procedural justice (Paternoster et al., 1997) but the detention spells in this study were very

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brief, ranging between three and eleven hours. Since 2000, a few more studies investigated the differential effects of sanctioning while taking the role of procedural justice effects into consideration. Findings among Dutch citizens and students indicated that the effect of sanction severity depended on procedural justice perceptions (Verboon & van Dijke, 2011, 2012). A study among justice-involved juveniles in the USA examined the interaction effect of procedural justice and sanctioning on subsequent involvement in illegal activities and found that perceptions of procedural justice condition the effect of a legal sanction on subsequent reoffending (Augustyn & Ward, 2015). In this study, sanctioning was operationalized as any involuntary contact with the police or court (e.g. being stopped by the police, being accused of committing a crime, and an appearance in court). Sanctions resulted in a higher likelihood of reoffending among individuals with low evaluations of procedural justice (criminogenic effects) but did not result in a lower likelihood of reoffending among individuals with high evaluations of procedural justice (no specific deterrent effects).

The study of Augustyn and Ward (2015) comes closest to the current study but due to differences in population, type of sanction, and the way sanctioning was measured, important and relevant differences in outcomes can be expected. First, the present study examines adults in detention instead of adolescents with an involuntary contact with the police or court. Deterrent effects rely on the idea that individuals balance the costs and benefits of their behavior and subsequently make a rational choice on how to behave. Adolescents are generally known to have lower levels of self-control and consequently may rely less on rational considerations when making behavioral choices (Casey & Caudle, 2013; Pogarsky, 2007). The effects of sanctioning may therefore be more pronounced among adults. Second, detention can be considered a more prolonged and severe sanction than an involuntary contact with the police or court. It can be expected that compared to contacts with the police or court, detention may have a more salient and stronger impact on both the experienced

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sanction severity and procedural justice perceptions because individuals that are detained for an extended period of time, remain in an environment that highly limits their personal freedom, and their contacts with correctional officers in detention are more frequent and prolonged. In this closed environment, correctional officers play a key role in the lives of imprisoned individuals as they interact with them on a daily basis. Third, it has been argued that deterrence (and sanction severity as part of that) is a perceptual phenomenon (Paternoster, 2010). While Augustyn and Ward measured sanctioning in an objective way, the current study examines the effects of subjective sanction severity. Sanctions can be experienced differently by different persons; taking a subjective approach may therefore provide a more precise test of the effects of sanction severity.

In sum, there are indications that the effects of sanctioning may depend on evaluations of procedural justice. Overall, however, few existing studies investigated the effects of (perceived) sanction severity and its interaction with procedural justice in relevant populations (i.e., prison or serious offending populations), used a strong methodological design (Cullen et al., 2011), or assessed the effects on actual behavior instead of behavioral intentions (e.g. Fagan & Piquero, 2007; Raaijmakers et al., 2017). Furthermore, most studies included objective measures such as the type of sanction or sanction length to operationalize sanction severity instead of the perceived sanction severity. Therefore, it remains difficult to draw firm conclusions about the effects of the perceived severity of detention and its interaction with procedural justice on subsequent behavior.

The present study fills this gap in knowledge and tests whether perceptions of sanction severity influence subsequent misconduct during detention and reoffending post-release among detained individuals and whether these effects depend on perceptions of procedural justice. The following questions will be answered. First, to what extent do perceptions of sanction severity among individuals who are detained influence their

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subsequent misconduct during detention and reoffending post-release? Second, to what extent are the effects of perceptions of sanction severity dependent on perceptions of procedural justice among this population?

Method

Data and Sample

We used data from the Prison Project, a longitudinal, nationwide study examining the effects of detention on several life domains of detained individuals and their families in The Netherlands (Dirkzwager et al., 2018). Data were collected at the beginning of pre-trial detention (3 weeks after arrival), repeatedly during detention (3 months, 9 months and 18 months after entry) and post-release (at 6 months and 24 months). Of the individuals who entered pre-trial detention between October, 2010 and April, 2011, 3,981 fulfilled the inclusion criteria (i.e., male; Dutch; aged 18-65 years; and born in the Netherlands) (Dirkzwager et al., 2018). This target sample eligible for participation was approached by trained employees of the Prison Project and asked whether they were willing to participate in an interview, and when willing, were also asked to fill in a written questionnaire in their cell and to bring it to the scheduled baseline interview. The current study used data from the baseline interview and questionnaire (T1, 3 weeks after arrival in pre-trial detention), the questionnaire at 3 months of detention (T2) and the interview data at 6 months after release (T3).

Of the total target sample 48.8% ($N = 1,904$) were interviewed at baseline. Of them, 1,748 additionally filled out the written questionnaire and signed an informed consent form. With a few exceptions, the characteristics of non-respondents at baseline were found to be comparable to those of the total target sample (see also Dirkzwager et al., 2018). Because the prison sentences in the Netherlands are relatively short, many participants ($n = 629$; 33%) had already been released at T2. Of the sample to contact ($n = 1,275$), 838 participated at T2

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(response rate: 65.7%). At T3, 1,799 were released long enough to be interviewed and therefore had to be located to ask for their participation in this wave. Of the sample to locate, 946 participants were interviewed (response rate: 52.6%). At both follow-up measurements, the characteristics of respondents were found to be very similar to the characteristics of participants in the baseline measurement (for more details see Dirkzwager et al., 2018).

Since we examined two different behavioral outcomes: misconduct in detention (measured at T2) and reoffending after release (measured at T3), the analyses were conducted for two different samples (i.e., those participating at T1 and T2, and those participating at T1 and T3). Complete data for the dependent and independent variables, as well as for the control variables were available for 763 (for misconduct) and 765 (for reoffending) participants. Of the individuals in our misconduct and reoffending subsamples 60.8% and 70.3% respectively spent their full prison term in pre-trial detention. The majority of the misconduct and reoffending subsamples were detained for a violent offense (53.9% and 49.4% respectively). Descriptive statistics for these samples are provided in Table 1.¹

[insert Table 1]

Dependent Variables

Misconduct

Self-reported misconduct was measured 3 months after arrival in pre-trial detention (T2) using five items. Participants were asked whether they had been (1) verbally aggressive to a staff member, (2) verbally aggressive to a fellow individual in detention, (3) physically aggressive to a staff member, (4) physically aggressive to a fellow individual in detention, and (5) whether they had received a disciplinary report during their stay in detention using a 4-point scale (1 = *never*, 4 = *more than five times*). Most of the 763 participants reported no misconduct (65.1%)² and of those who reported misconduct ($n = 266$) the majority of participants (57.5%) reported to have engaged in only one form of misconduct with receiving

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a disciplinary report being the most frequently reported form of misconduct. Therefore, a dichotomous variable was constructed that indicated whether a participant had engaged in any form of self-reported misconduct (0 = no to all five items, 1 = yes to one or more items).³

Reoffending

Self-reported reoffending was measured 6 months after release (T3). For each month, participants indicated their offending behavior. Most of the 765 participants reported no reoffending (79.2%)⁴ and of those who reported reoffending ($n = 159$) the majority of participants reported to have reoffended in only one of the six months (37.7%) or in all six months (33.3%).⁵ Therefore, a dichotomous variable was constructed to distinguish between those who did or did not engage in any form of self-reported reoffending during at least one of the 6 months post-release (0 = no offending in 6 months post-release, 1 = offended in at least one month).⁶

Independent Variables

Subjective Severity of Detention (SSD)

The subjective severity of detention (SSD) was assessed with four items at baseline (T1). First, in the questionnaire participants were asked: “How severe do you experience your current detention?” They could answer this question on a 7-point scale (1 = *not severe at all*, 7 = *very severe*). Second, during the interview participants were asked to rate on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*) to what extent they agreed or disagreed with the following three items: “My stay in detention is severe”, “My time here feels very much like a punishment” and “This detention is harder than I thought beforehand”. To facilitate the interpretation of the findings, the 7-point item was recoded into 5 answer categories that match the 5-point Likert scale of the other three items, by combining the two most extreme scores on both ends of the original scale into one answer category. Higher scores on all items represented a more severe prison experience. The total SSD score was

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computed by taking the mean of the four items.⁷ The internal consistency of the scale was good with a Cronbach's alpha of .81.

Perceived Procedural Justice (PPJ) – Moderator Variable

The extent to which people experienced their treatment by prison staff as procedurally just at baseline (T1) was measured with 11 items relating to fairness, impartiality, ethicality, quality of decision making, and quality of treatment. These items have been commonly used in prior procedural justice studies (Beijersbergen et al., 2016; Reisig & Mesko, 2009). Examples of items are: "Prison staff treat me with respect", "Prison staff give me the chance to express my views before they make a decision", and "Prison staff make decisions fairly". Participants were asked to indicate on a five-point Likert scale to what extent they agreed or disagreed with these statements. Higher scores represented a higher level of perceived procedural justice. The total PPJ score was computed by taking the mean of the 11 items.⁸ The internal consistency of the scale was excellent with a Cronbach's alpha of .93.

Control variables

The following variables were included as control variables: age at arrest/release; whether or not participants had a second-generation migration background (0 = no; 1 = yes); had a partner at arrest (0 = yes; 1 = no); or had a lower educational level at arrest (0 = no; 1 = yes). Furthermore, several variables relating to participants' criminal history and their current crime were included: first arrest prior to the age of 18 (0 = no; 1 = yes); the number of prior detentions in the past 5 years (0 = none; 1 = one or more); the length of detention (in months); and the offense type the participants were suspected of (1 = violent, 2 = property, 3 = drug, 4 = other).

Statistical analysis

For each outcome measure, we fitted two generalized logistic regression models. In the first model we included subjective severity of detention to determine to what extent individuals'

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subjective severity of detention influences their subsequent behavior (first research question).

In the second model we included the statistical interaction term of SSD and PPJ to examine to what extent the effects of subjective severity of detention depend on perceptions of procedural justice (second research question). These analyses were conducted both without and with control variables.⁹ To reduce multicollinearity between the interaction term and SSD and PPJ and to aid the interpretation, both the dependent variables and the continuous independent variables were grand mean centered to conduct the analyses (Enders & Tofighi, 2007).¹⁰

Results

The Effects of Subjective Severity of Detention on Misconduct and Reoffending

First, we start with a descriptive examination of our two central dependent variables (i.e., misconduct and reoffending) and examine these two behavioral outcomes for individuals with different perceptions of the severity of detention (SSD) and procedural justice (PPJ). Table 2 presents the percentage of misconduct and reoffending for participants with different SSD/PPJ score combinations. We classified participants according to their SSD and PPJ scores, originally ranging from 1 thru 5, into three categories: low (scores: 1 to 2.5), neutral (scores: 2.5 to 3.5) and high (scores 3.5 to 5).

When holding PPJ at its neutral position the percentage of misconduct and reoffending is lowest when SSD perceptions are high (30.6% and 17.2%, respectively) compared to when SSD perceptions are low (36.2% and 36.4%, respectively) (see Table 2; dark grey cells). This seems in line with a deterrent effect of (more) severely experienced detention. Moreover, the diagonals of the table (see light grey cells) provide initial insight into the expected interaction effect of SSD and PPJ. Detained individuals with a low score on both SSD and PPJ misbehaved and reoffended relatively often (63.6% and 25%,

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respectively), whereas detained individuals with a high score on both SSD and PPJ were least likely to misbehave and reoffend (18.2% and 9%, respectively).

[insert Table 2]

Next, we examined our first research question and investigated the separate effect of subjective severity of detention by conducting a generalized logistic regression model per outcome measure (i.e., self-reported misconduct and reoffending). The results are displayed in Table 3. Detained individuals who experienced their detention as more severe ($OR = 0.75$, $p = .003$), reported less reoffending in the six months post-release. This finding means that for one unit increase in SSD (e.g., from value 3 to 4), the odds of getting reconvicted decreases with 25%. To illustrate the magnitude of this effect of sanction severity on reoffending we provide the following example: Detained individuals who experience their detention as severe (i.e., $SSD = 4$) are 10% less likely to reoffend than detained individuals who experience their sanction as not severe (i.e., $SSD = 2$) (18.3% versus 28.4%, respectively).¹¹ There was no significant main effect of sanction severity on subsequent self-reported misconduct (although it almost reached significance with $p = .051$).¹²

[insert Table 3]

The Interaction Effect of Sanction Severity and Procedural Justice on Misconduct and Reoffending

Additionally, we examined whether the effect of subjective severity of detention depends on perceptions of procedural justice by adding the interaction effect between SSD and PPJ to the generalized logistic regression models (see also Table 3). The results for reoffending showed that the interaction effect of SSD and PPJ is not statistically significant. The results for misconduct, however, demonstrated a significant interaction effect of SSD and PPJ ($OR = 0.77$, $p = .04$).^{13 14}

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Figure 1a illustrates the meaning of this significant interaction term. The figure shows the effect of sanction severity, as an odds ratio, on subsequent misconduct across evaluations of procedural justice (black line). Note that an odds ratio of 1.0 implies that there is no effect of sanction severity. An odds ratio above 1.0 indicates that the effect of subjective severity is positive, which means that the odds of misconduct among participants who experience their detention as more severe are greater than the odds of misconduct among participants who experience their detention as less severe. An odds ratio below 1.0 indicates that the effect of subjective severity is negative, which means that the odds of misconduct among participants who experience their detention as more severe are lower than the odds of misconduct among participants who experience their detention as less severe.

[insert Figure 1]

Figure 1a clearly shows that the effect of SSD on subsequent misconduct in detention is dependent on peoples' perceptions of procedural justice. Among participants who perceive their treatment as procedurally unjust (i.e., PPJ = 1), the effect of SSD is positive (i.e., the *OR* is above one: *OR* = 1.39). This means that for one unit increase in SSD among these participants, the odds of involvement in misconduct increases with 39%. Among participants who perceive their treatment as procedurally just (i.e., PPJ = 5), the effect of SSD is negative (i.e., the *OR* is below 1: *OR* = 0.49). This means that for these participants the odds of involvement in misconduct decreases with 51% when SSD increases with one unit. So, for detained individuals who perceive their treatment as procedurally unjust, a more severe sanction has a criminogenic effect (i.e., more engagement in subsequent misconduct). Reversely, for detained individuals who perceive their treatment as procedurally just, a more severe sanction has a deterrent effect on misconduct. It is to be noted, however, that the effect of SSD is only statistically significant for those who perceive their treatment at least as neutral (see 95% confidence interval in Figure 1a).¹⁵ Therefore, our findings suggest a

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significant deterrent effect of sanction severity among participants who experienced their treatment as neutral to procedurally just, but not a significant criminogenic effect of sanction severity among participants who experienced their treatment as procedurally unjust.¹⁶

The interaction effect can also be illustrated by comparing the probabilities to engage in misconduct between detained individuals who experienced their detention as either severe/not severe and their treatment as procedurally just/unjust. Among detained individuals who perceived their treatment as procedurally unjust (i.e., PPJ = 2), 46.9% of those who perceived their detention as severe (i.e., SSD = 4) were involved in subsequent misconduct, whereas 43.5% of those who perceived their detention as not severe (SSD = 2) misbehaved. Reversely, among detained individuals who perceived their treatment as procedurally just (i.e., PPJ = 4), 21.7% of those who perceived their detention as severe (i.e., SSD = 4) were involved in subsequent misconduct, whereas 40.6% of those who perceived their detention as not severe (SSD = 2) engaged in misconduct. This illustrates the deterrent effect of sanction severity when treatment is experienced as procedurally just.

Exploratory Analyses for First-Timers in Detention

Prior studies have indicated differential effects of sanctioning for individuals who are detained for the first-time compared to individuals with prior arrest or detention experiences (e.g., Aarten et al., 2014). This has been linked to the idea that in particular the first detention experience will have an impact on individuals and consequently on their reoffending behavior. Hence, the behavioral reaction of first-timers in detention may differ from the behavioral reaction of the overall population in detention. Therefore, we repeated the analyses for the subsample of first-timers to explore the effects of SSD and its interaction with PPJ for this subgroup.

It turned out that in our reoffending subsample, first-timers ($n = 366$) perceived their treatment as more procedurally just ($M = 3.3$; $SD = 0.6$; $p < .001$) and their detention as more

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severe ($M = 3.6$; $SD = 0.9$; $p = .001$) compared to detained individuals with prior detention experiences (PPJ: $M = 3.1$; $SD = 0.7$; SSD: $M = 3.4$; $SD = 1.0$). Similarly, in our misconduct subsample, first-timers ($n = 358$) perceived their treatment as more procedurally just ($M = 3.2$; $SD = 0.6$; $p < .001$) and their detention as more severe ($M = 3.7$; $SD = 0.9$; $p = .001$) compared to detained individuals with prior detention experiences (PPJ: $M = 3.0$; $SD = 0.6$; SSD: $M = 3.5$; $SD = 0.9$).

Interestingly, we found a significant interaction effect of SSD and PPJ on post-release reoffending ($OR = 0.57$, $p = .04$) for the subsample of first-timers (see supplemental material Table A2).¹⁷ For first-timers in detention, the effect of SSD on subsequent reoffending is dependent on perceptions of procedural justice. As illustrated in Figure 1b, among participants who perceive their treatment as procedurally very unjust (i.e., PPJ = 1), the effect of SSD is positive ($OR = 2.55$) and among participants who perceive their treatment as procedurally very just (i.e., PPJ = 5), the effect of SSD is negative ($OR = 0.27$). This suggests that for individuals who are detained for the first time and who perceive their treatment as procedurally unjust, a more severe sanction has a criminogenic effect (i.e., more reoffending), whereas for first-timers who perceive their treatment as procedurally just, a more severe sanction has a deterrent effect on post-release reoffending.^{18 19}

Again, we illustrate the interaction effect by comparing the probabilities to engage in reoffending between first-timers in detention who experienced their detention as either severe/not severe and their treatment as procedurally just/unjust. Among participants who perceived their treatment as procedurally unjust (i.e., PPJ = 2), 16.7% of those who perceived their detention as severe (i.e., SSD = 4) reoffended in the six months post-release, compared with 8.7% of those who perceived their detention as not severe (SSD = 2). Reversely, among participants who perceived their treatment as procedurally just (i.e., PPJ = 4), 8.7% of those who perceived their detention as severe (i.e., SSD = 4) reoffended, whereas 30.1% of those

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who perceived their detention as not severe (i.e., SSD = 2) reoffended. This illustrates the deterrent effect of sanction severity on reoffending when first-timers in detention experienced their treatment as procedurally just.

Discussion

Severe sanctions – such as detention – are frequently applied worldwide. One of the aims of doing so is to prevent future crimes by discouraging individuals from re-offending (i.e. the aim of specific deterrence). In this way, detention is intended to contribute to a safer society (Scott, 2007). Prior research findings, however, indicated that detention or the experienced severity of detention on its own does not consistently achieve this aim (e.g., Meade et al., 2013; Nagin & Snodgrass, 2013). The present study shows that the experienced severity of detention in combination with a fair treatment by legal authorities has the potential to contribute to a safer climate both inside and outside correctional facilities.

This longitudinal study provides insight into the conditions under which the experienced severity of detention deters from subsequent criminal behavior by empirically testing the interaction effect of the experienced severity of detention and procedural justice perceptions on subsequent behavior (i.e., misconduct and reoffending) among individuals who are detained. Three key findings were observed. Firstly, detained individuals who experienced their detention as more severe were less likely to reoffend after detention. Secondly, the deterrent effect of sanction severity on misconduct was dependent on procedural justice and only occurred among detained individuals who experienced their treatment by prison staff as neutral to fair. Thirdly, for individuals who were detained for the first time in their lives the deterrent effect of sanction severity on reoffending was dependent on how they perceived their treatment by prison staff and also only occurred among first-timers who experienced their treatment by prison staff as neutral to fair. Our findings, therefore, highlight the added value of integrating deterrence theory with other situational

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characteristics such as procedural justice in order to better explain and understand the effects of sanctioning.

The fact that we observed a significant relationship between participants' perceptions of sanction severity and their post-release reoffending is in line with prior studies (Crank & Brezina, 2013; Gaes & Camp, 2009; Raaijmakers et al., 2017). At the same time, we did not observe a significant relationship with misconduct in detention (although this relationship almost reached statistical significance as well). Therefore, our findings seem to lend partial support for the deterrence theory.

With respect to misconduct, we did find that the effect of perceived sanction severity was dependent on perceptions of procedural justice. Only for detained individuals who experienced their treatment by prison staff as neutral to procedurally just, a more severe detention had a deterrent effect on subsequent misconduct. Contrary to this finding regarding misconduct and contrary to the findings of the few existing studies (Augustyn & Ward, 2015; Verboon & van Dijke, 2011, 2012), the effect of sanction severity was not conditioned on procedural justice when reoffending was used as the outcome measure. A potential explanation for this may be that the conditional deterrent effect observed for subsequent misconduct may have only short-term behavioral implications (i.e., misconduct assessed 3 months after procedural justice), may fade away after release, and hence may not have as strong an effect on behavior after detention. Interestingly, however, among individuals who were detained for the first time, we observed a deterrent effect of sanction severity on reoffending but only for those first-timers who experienced their treatment as procedurally just. This finding suggests that sanctioning and procedural justice may have different effects on individuals who are detained for the first time. The interaction effect may be more pronounced among this subsample of first-timers and may have more lasting effects on their

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criminal behavior because first-timers perceived their treatment as more procedurally just and their detention as more severe compared to individuals with prior detention experiences.

Before addressing the relevance of our results for practice and public policy, we outline a few suggestions for future research. Our results should be replicated in different correctional populations, settings, and countries, in order to test whether the findings are generalizable. Perceptions of sanction severity and perceived procedural justice in our study may be affected by specific characteristics of the Dutch context, such as the relatively humane prison conditions (Dervan, 2011; van Ginneken et al., 2018), relatively relaxed staff-prisoner relationships, and the relatively short prison sentences in the Netherlands (Aebi & Delgrande, 2014), which may attenuate the effect of sanction severity relative to countries with longer prison sentences or harsher conditions of confinement. Furthermore, we encourage future research to include both short-term and long-term follow-up periods to assess and compare the behavioral effects of sanction severity and procedural justice over time. Our study only examined reoffending behavior in the first six months post-release. While this may be seen as a relatively short period, prior research showed that a substantial part of rearrests occur in the first six months post-release (Durose et al., 2014). Finally, an important avenue for further research would be to investigate potential mechanisms that may explain the dependency of the effect of sanction severity on procedural justice and to identify additional situational conditions that may moderate the effects of sanctioning.

The results of the current study are relevant for correctional policy and practice. In line with Bottoms (1999), our findings suggest that prison staffs' relationships with detained individuals can substantially contribute to order in prison and beyond. This was illustrated by the fact that the deterrent effects of detention on misconduct in prison and post-release reoffending were dependent on detained individuals' perceptions of procedural justice by correctional officers, and only occurred among detained individuals who perceived their

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treatment by prison staff as procedurally just. This outcome is relevant for policy makers and prison management and suggests that it is worthwhile for them to pay attention to how individuals in detention are treated and how perceptions of procedural justice are formed.

This is especially relevant because treatment by prison staff is a factor that is actually manageable and thus can be influenced, for example by selecting, informing and training staff. Prior research, for instance, suggested that selection procedures that increase the officer-inmate ratio and ratio of female officers may contribute to higher procedural justice perceptions among detained individuals (Beijersbergen et al., 2015). Moreover, informing and training staff on aspects of procedural justice has the potential to positively affect procedural justice perceptions of individuals in detention. A recent study, for example, indicated that after a short training of criminal justice actors – in this case police recruits – on procedural justice and interpersonal communications skills they were perceived to act in a more procedurally just way during public encounters by their field training officers (Antrobus et al., 2019). Finally, procedural justice perceptions may also be encouraged by putting procedures and protocols in place that increase the transparency of decision making, and as such will aid unbiased decision making and illustrate to detained individuals what factors influence decision making (Jackson et al., 2010).

In sum, safety in society, as well as a safe working or living climate for prison staff and detained individuals is of major importance for policy and practice. Our findings suggest that prison staff can contribute to lower rates of misconduct in detention and lower post-release reoffending rates by treating individuals in detention in a fair and respectful manner.

References

- Aarten, P. G. M., Denkers, A., Borgers, M. J., & van der Laan, P. H. (2014). Suspending re-offending? Comparing the effects of suspended prison sentences and short-term imprisonment on recidivism in the Netherlands. *European Journal of Criminology*, 11(6), 702–722. <https://doi.org/10.1177/1477370814523402>
- Abbiati, M., Palix, J., Gasser, J., & Moulin, V. (2019). Predicting physically violent misconduct in prison: A comparison of four risk assessment instruments. *Behavioral Sciences and the Law*, 37(1), 61–77. <https://doi.org/10.1002/bsl.2364>
- Aebi, M. F., & Delgrande, N. (2014). *SPACE I – Council of Europe annual penal statistics: Prison populations. Survey 2012*. Strasbourg: Council of Europe.
- Antrobus, E., Thompson, I., & Ariel, B. (2019). Procedural justice training for police recruits: results of a randomized controlled trial. *Journal of Experimental Criminology*, 15, 29–53. <https://doi.org/10.1007/s11292-018-9331-9>
- Apel, R., & Nagin, D. S. (2017). Perceptual deterrence. In W. Bernasco, J.-L. Van Gelder, & H. Elffers (Eds.), *The Oxford handbooks in criminology and criminal justice. The Oxford handbook of offender decision making* (pp. 121–140). Oxford University Press.
- Augustyn, M. B., & Ward, J. T. (2015). Exploring the sanction-crime relationship through a lens of procedural justice. *Journal of Criminal Justice*, 43(6), 470–479. <https://doi.org/10.1016/j.jcrimjus.2015.10.001>
- Baidawi, S., Trotter, C., & Flynn, C. (2016). Prison experiences and psychological distress among older inmates. *Journal of Gerontological Social Work*, 59(3), 252–270. <https://doi.org/10.1080/01634372.2016.1197353>
- Beccaria, C. B. M. (1819). *An essay on crimes and punishments*. (2nd Americ). Philip H. Nicklin. (Original work published 1764).
- Beijersbergen, K. A., Dirkzwager, A. J. E. E., & Nieuwbeerta, P. (2016). Reoffending after

SANCTION SEVERITY AND PROCEDURAL JUSTICE

- release: Does procedural justice during imprisonment matter? *Criminal Justice and Behavior*, 43(1), 63–82. <https://doi.org/10.1177/0093854815609643>
- Beijersbergen, K. A., Dirkzwager, A. J. E., Molleman, T., Van Der Laan, P. H., & Nieuwebeerta, P. (2015). Procedural justice in prison: The importance of staff characteristics. *International Journal of Offender Therapy and Comparative Criminology*, 59(4), 337–358. <https://doi.org/10.1177/0306624X13512767>
- Bentham, J. (1982). *An introduction to the principles of morals and legislation* (J. H. Burns & H. L. A. Hart (eds.)). Methuen & Co. (Original work published 1970).
- Bhati, A. S., & Piquero, A. R. (2007). Estimating the impact of incarceration on subsequent offending trajectories: Deterrent, criminogenic, or null effect. *Journal of Criminal Law and Criminology*, 98(1), 207–254.
- Bosma, A. Q., Esther, E. F. J., Sentse, M., & Palmen, H. (2020). Examining prisoner misconduct: A multilevel test using personal characteristics, prison climate, and prison environment. *Crime & Delinquency*, 66(4), 451–484.
<https://doi.org/10.1177/0011128719877347>
- Bottoms, A. E. (1999). Interpersonal violence and social order in prisons. *Crime and Justice*, 26, 205–281. <https://doi.org/10.1086/449298>
- Casey, B. J., & Caudle, K. (2013). The teenage brain: Self control. *Current Directions in Psychological Science*, 22(2), 82–87. <https://doi.org/10.1177/0963721413480170>
- Caudy, M. S., Tillyer, M. S., & Tillyer, R. (2018). Jail versus probation: A gender-specific test of differential effectiveness and moderators of sanction effects. *Criminal Justice and Behavior*, 45(7), 949–968. <https://doi.org/10.1177/0093854818766375>
- Chalfin, A., & McCrary, J. (2017). Criminal deterrence: A review of the literature. *Journal of Economic Literature*, 55(1), 5–48. <https://doi.org/10.1257/jel.20141147>
- Cheeseman, K. A., Kim, B., Lambert, E. G., & Hogan, N. L. (2011). Correctional officer

SANCTION SEVERITY AND PROCEDURAL JUSTICE

- perceptions of inmates and overall job satisfaction. *Journal of Crime and Justice*, 34(2), 81–102. <https://doi.org/10.1080/0735648X.2011.580515>
- Cochran, J. C., & Mears, D. P. (2017). The path of least desistance: Inmate compliance and recidivism. *Justice Quarterly*, 34(3), 431–458. <https://doi.org/10.1080/07418825.2016.1168476>
- Crank, B. R., & Brezina, T. (2013). “Prison Will Either Make Ya or Break Ya”: Punishment, deterrence, and the criminal lifestyle. *Deviant Behavior*, 34(10), 782–802. <https://doi.org/10.1080/01639625.2013.781439>
- Cullen, F. T., Jonson, C. L., & Nagin, D. S. (2011). Prisons do not reduce recidivism: The high cost of ignoring science. *The Prison Journal*, 91(3), 48S–65S. <https://doi.org/10.1177/0032885511415224>
- Dervan, L. E. (2011). American prison culture in an international context: An examination of prisons in America, the Netherlands, and Israel. *Stanford Law & Policy Review*, 22, 413–428.
- Dirkzwager, A. J. E., Nieuwbeerta, P., Beijersbergen, K. A., Bosma, A. Q., de Cuyper, R., Doekhie, J., Eichelsheim, V., de Goede, S., van der Laan, P. H., Lamet, W., Palmen, H., Raaijmakers, E., Ramakers, A., Reef, J., van der Stelt, S., Wensveen, M., & Wermink, H. (2018). Cohort profile: The prison project—a study of criminal behavior and life circumstances before, during, and after imprisonment in the Netherlands. *Journal of Developmental and Life-Course Criminology*, 4(1), 120–135. <https://doi.org/10.1007/s40865-017-0077-2>
- Durose, M. R., Cooper, A. D., & Snyder, H. N. (2014). Recidivism of prisoners released in 30 states in 2005: Patterns from 2005 to 2010 (Report No. NCJ 244205). U.S. Department of Justice, Office of Justice Programs, Bureau of Justice Statistics. <https://intranet.americansforthearts.org/sites/default/files/recidivism0510.pdf>

SANCTION SEVERITY AND PROCEDURAL JUSTICE

- Enders, C. K., & Tofighi, D. (2007). Centering predictor variables in cross-sectional multilevel models: A new look at an old issue. *Psychological Methods*, 12(2), 121–138.
<https://doi.org/10.1037/1082-989X.12.2.121>
- Fagan, J., & Piquero, A. R. (2007). Rational choice and developmental influences on recidivism among adolescent felony offenders. *Journal of Empirical Legal Studies*, 4(4), 715–748. <https://doi.org/10.1111/j.1740-1461.2007.00105.x>
- Farrall, S. (2005). Officially recorded convictions for probationers: The relationship with self-report and supervisory observations. *Legal and Criminological Psychology*, 10(1), 121–131. <https://doi.org/10.1348/135532504X15367>
- Fox, J., & Monette, G. (1992). Generalized collinearity diagnostics. *Journal of the American Statistical Association*, 87(417), 178–183.
<https://doi.org/10.1080/01621459.1992.10475190>
- Gaes, G. G., & Camp, S. D. (2009). Unintended consequences: Experimental evidence for the criminogenic effect of prison security level placement on post-release recidivism. *Journal of Experimental Criminology*, 5(2), 139–162. <https://doi.org/10.1007/s11292-009-9070-z>
- Gifford, B. (2019). Prison crime and the economics of incarceration. *Stanford Law Review*, 71(1), 71–135.
- Hjalmarsson, R. (2009). Juvenile jails: A path to the straight and narrow or to hardened criminality? *Journal of Law and Economics*, 52(4), 779–809.
<https://doi.org/10.1086/596039>
- Huizinga, D., & Henry, K. L. (2008). The effect of arrest and justice system sanctions on subsequent behavior: Findings from longitudinal and other studies. In A. M. Liberman (Ed.), *The long view of crime: A synthesis of longitudinal research*. (1st ed., pp. 220–254). Springer.

SANCTION SEVERITY AND PROCEDURAL JUSTICE

- Jackson, J., Tyler, T. R., Bradford, B., Taylor, D., & Shiner, M. (2010). Legitimacy and procedural justice in prisons. *Prison Service Journal*, 191, 4–10.
- Maguire, E. R., Atkin-Plunk, C. A., & Wells, W. (2019). The Effects of Procedural Justice on Cooperation and Compliance among Inmates in a Work Release Program. *Justice Quarterly*, 0(0), 1–26. <https://doi.org/10.1080/07418825.2019.1634753>
- Meade, B., Steiner, B., Makarios, M., & Travis, L. (2013). Estimating a dose-response relationship between time served in prison and recidivism. *Journal of Research in Crime and Delinquency*, 50(4), 525–550. <https://doi.org/10.1177/0022427812458928>
- Nagin, D. S., & Snodgrass, G. M. (2013). The effect of incarceration on re-offending: Evidence from a natural experiment in Pennsylvania. *Journal of Quantitative Criminology*, 29, 601–642. <https://doi.org/10.1007/s10940-012-9191-9>
- Paternoster, R. (2010). How much do we really know about criminal deterrence. *Journal of Criminal Law & Criminology*, 100(3), 765–824. <https://www.jstor.org/stable/25766109>
- Paternoster, R., Brame, R., Bachman, R., Sherman, L. W., Law, S., Review, S., & Sherman, L. W. (1997). Do fair procedures matter? The effect of procedural justice on spouse assault. *Law & Society Review*, 31(1), 163–204. <https://doi.org/10.2307/3054098>
- Petersilia, J. (2011). Beyond the prison bubble. *The Wilson Quarterly*, 35(1), 50–55.
- Piquero, A. R., Paternoster, R., Pogarsky, G., & Loughran, T. (2011). Elaborating the individual difference component in deterrence theory. *Annual Review of Law and Social Science*, 7, 335–360. <https://doi.org/10.1146/annurev-lawsocsci-102510-105404>
- Pogarsky, G. (2007). Deterrence and individual differences among convicted offenders. *Journal of Quantitative Criminology*, 23, 59–74. <https://doi.org/10.1007/s10940-006-9019-6>
- Raaijmakers, E. A. C., Loughran, T. A., de Keijser, J. W., Nieuwbeerta, P., & Dirkzwager, A. J. E. (2017). Exploring the relationship between subjectively experienced severity of

SANCTION SEVERITY AND PROCEDURAL JUSTICE

imprisonment and recidivism: A neglected element in testing deterrence theory. *Journal of Research in Crime and Delinquency*, 54(1), 3–28.

<https://doi.org/10.1177/0022427816660588>

Reisig, M. D., & Mesko, G. (2009). Procedural justice, legitimacy, and prisoner misconduct.

Psychology, Crime & Law, 15(1), 41–59. <https://doi.org/10.1080/10683160802089768>

Scott, D. (2007). The changing face of the English prison: A critical review of imprisonment.

In Y. Jewkes (Ed.), *Handbook on Prisons* (1st ed., pp. 49–72). Willian Publishing.

Sherman, L. W. (1993). Defiance, deterrence, and irrelevance: A theory of the criminal sanction. *Journal of Research in Crime and Delinquency*, 30(4), 445–473.

<https://doi.org/10.1177/0022427893030004006>

Steiner, B., & Wooldredge, J. (2015). Individual and environmental sources of work stress among prison officers. *Criminal Justice and Behavior*, 42(8), 800–818.

<https://doi.org/10.1177/0093854814564463>

Tomlinson, K. D. (2016). An Examination of Deterrence Theory: Where Do We Stand.

Federal Probation, 80(3), 33–38.

Tyler, T. R. (1988). What is procedural justice?: Criteria used by citizens to assess the fairness of legal procedures. *Law & Society Review*, 22(1), 103–136.

<https://doi.org/10.2307/3053563>

Tyler, T. R., & Blader, S. L. (2003). The Group Engagement Model: Procedural justice, social identity, and cooperative behavior. *Personality and Social Psychology Review*, 7(4), 349–361. https://doi.org/10.1207/S15327957PSPR0704_07

van Ginneken, E. F. J. C., Palmen, H., Bosma, A. Q., Nieuwbeerta, P., & Berghuis, M. L. (2018). The Life in Custody study: The quality of prison life in Dutch prison regimes. *Journal of Criminological Research, Policy and Practice*, 4(4), 253–268.

<https://doi.org/10.1108/JCRPP-07-2018-0020>

SANCTION SEVERITY AND PROCEDURAL JUSTICE

- Verboon, P., & van Dijke, M. (2011). When do severe sanctions enhance compliance? The role of procedural fairness. *Journal of Economic Psychology*, 32(1), 120–130.
<https://doi.org/10.1016/j.joep.2010.09.007>
- Verboon, P., & van Dijke, M. (2012). The effect of perceived deterrence on compliance with authorities: The moderating influence of procedural justice. *International Journal of Criminology and Sociology*, 1, 151–161. <https://doi.org/10.6000/1929-4409.2012.01.15>
- Walters, G. D. (2021). Are the Criminogenic Effects of Incarceration Mediated by a Change in Criminal Thinking or a Change in Perceived Certainty? *Prison Journal*, 101(1), 21–40. <https://doi.org/10.1177/0032885520978374>
- Wermink, H., Blokland, A., Nieuwbeerta, P., Nagin, D., & Tollenaar, N. (2010). Comparing the effects of community service and short-term imprisonment on recidivism: A matched samples approach. *Journal of Experimental Criminology*, 6, 325–349.
<https://doi.org/10.1007/s11292-010-9097-1>
- Yukhnenko, D., Sridhar, S., & Fazel, S. (2019). A systematic review of criminal recidivism rates worldwide: 3-year update [version 3]. *Wellcome Open Research*, 4(28), 1–24.
[10.12688/wellcomeopenres.14970.3](https://doi.org/10.12688/wellcomeopenres.14970.3)

¹ Correlations of the continuous variables can be found in the supplemental material (Table A1).

² 54.2% of the self-reported absence of misconduct was confirmed by registration data. Similarly, 22.7% of the self-reported misconduct was confirmed by registration data. An additional 12.2% of the self-reported misconduct was not reported administratively and 10.9% of registered misconduct was not self-reported.

³ Individuals were included in the analyses if they had no more than one missing value.

⁴ 68.5% of the self-reported absence of reoffending was confirmed by registration data. Similarly, 9.6% of the self-reported reoffending was confirmed by registration data. An additional 11.1% of the self-reported reoffending was not reported administratively and 10.7% of registered reoffending was not self-reported.

⁵ The types of reoffending that were reported were: theft ($n = 48$), drug offenses ($n = 39$), burglary ($n = 31$), violent offenses ($n = 26$), car theft ($n = 14$), fraud ($n = 7$), robbery ($n = 4$) and other offenses ($n = 28$).

⁶ Individuals were included in the analyses if they had no more than one missing value.

⁷ Individuals were included in the analyses if they had a valid value on at least 3 of the 4 items.

⁸ Individuals were included in the analyses if they had a valid value on at least 7 of the 11 items.

⁹ Since self-reported and administrative data both have their own biases that may result in over- or underreporting (Bosma et al., 2020; Farrall, 2005), we conducted the main analyses on self-reported data but repeated the analyses on administrative data.

¹⁰ A final inspection of the variance inflation factors (VIF's) indicated no problems with multicollinearity for none of the estimated models, as all VIF values were close to 1 (Fox & Monette, 1992).

¹¹ When we conducted the analyses with the control variables, the effect of SSD on reoffending did not remain statistically significant ($OR = 0.85, p = .12$).

¹² We repeated the analyses based on registered misconduct. Overall, this resulted in fairly similar coefficients and patterns (see supplemental material Table A3).

¹³ The interaction effect of SSD and PPJ on subsequent misconduct and post-release reoffending did not remain significant after including the control variables (see Table 3).

¹⁴ We repeated the analyses based on registered convictions. Results were comparable to the results based on the self-report measures (see supplemental material Table A3).

¹⁵ The effect of SSD is statistically significant for people who perceived their treatment at least as neutral: i.e. PPJ equal to or larger than 2.93; see the 95% confidence interval depicted in the grey area of Figure 1a

¹⁶ However, due to a small number of people who perceived their treatment as very procedurally unjust (i.e., PPJ = 1) the estimated SSD effect is less precise, as can be concluded from the 95% confidence interval also depicted as the grey area on the left side in Figure 1a. Therefore, firm conclusion on the effect of SSD for low scores of PPJ cannot be drawn.

¹⁷ The interaction effect remained significant after accounting for the control variables ($OR = 0.53, p = .032$).

¹⁸ It is to be noted, that effect of SSD is statistically significant for people who perceived their treatment at least as neutral (PPJ equal to or larger than 3.35), as can be concluded from the 95% confidence interval depicted in the grey area of Figure 1b.

¹⁹ However, due to a small number of people who perceived their treatment as very procedurally unjust (i.e., PPJ = 1) the estimated SSD effect is less precise, as can be concluded from the 95% confidence interval also depicted as the grey area on the left side in Figure 1b. Therefore, firm conclusion on the effect of SSD for low scores of PPJ cannot be drawn.

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Table 1*Descriptive Statistics per Outcome Measure*

Variable	For analyses on: Misconduct (<i>n</i> = 763)			For analyses on: Reoffending (<i>n</i> = 765)		
	Median	<i>IQR</i>	%	Median	<i>IQR</i>	%
Subjective severity detention	3.8	1.2		3.5	1.2	
Perceived procedural justice	3.1	0.7		3.2	0.8	
Self-reported misconduct						
Any form of misconduct			34.9			
No misconduct			65.1			
Self-reported reoffending						
Offending in at least one of the six months						20.8
No reoffending during six months post-release						79.2
Age at arrest	27.0	15.0				
Age at release				29.0	17.0	
Detention length in months				4.5	7.8	
Number of detentions last five years						
None			59.6			58.4
One or more			40.5			41.6
Migration background						
No			63.7			68.2
Yes			36.3			31.8
Type of offense						
Violent			53.9			49.4
Property			21.6			29.7
Drug			14.7			10.7
Other			9.8			10.2
Age at first arrest						
Younger than 18 years old			58.1			58.3
18 years or older			41.9			41.7
Partner at arrest						
No			48.2			54.8
Yes			51.8			45.2
Educational level at arrest						
Lower or no education			62.8			63.1
Medium or higher			37.2			36.9

Note. *IQR* = Interquartile range;

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Table 2

Percentage of Self-Reported Misconduct and Self-Reported Reoffending for Different Scores of Subjective Severity of Detention (SSD) and Perceived Procedural Justice (PPJ)

	PPJ low (1-2.5)		PPJ neutral (2.5-3.5)		PPJ high (3.5-5)	
	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
% Misconduct (<i>n</i> =763)						
SSD low (1-2.5)	63.6	11	36.2	47	32.4	37
SSD neutral (2.5-3.5)	43.3	30	39.6	169	35.0	80
SSD high (3.5-5)	47.6	82	30.6	219	18.2	88
% Reoffending (<i>n</i> =765)						
SSD low (1-2.5)	25.0	4	36.4	55	18.8	48
SSD neutral (2.5-3.5)	30.6	36	18.2	154	29.9	87
SSD high (3.5-5)	26.4	72	17.2	209	9.0	100

SANCTION SEVERITY AND PROCEDURAL JUSTICE

Table 3

Generalized Logistic Regression Models Assessing the Main Effect of Sanction Severity and Interaction Effect of Sanction Severity and Procedural Justice per Outcome Measure with and without Control Variables

Variable	Misconduct (n = 763)				Reoffending (n = 765)			
	Model 1: Main Effect		Model 2: + Interaction Effect		Model 1: Main Effect		Model 2: + Interaction Effect	
	95% CI		95% CI		95% CI		95% CI	
	<i>Exp (b)</i>	[LL , UL]	<i>Exp (b)</i>	[LL , UL]	<i>Exp (b)</i>	[LL , UL]	<i>Exp (b)</i>	[LL , UL]
Models without controls								
Constant	0.53***	[0.46, 0.62]	0.51***	[0.44, 0.59]	0.26***	[0.21, 0.31]	0.25***	[0.20, 0.30]
Subjective severity detention	0.85	[0.73, 1.00]	0.80**	[0.68, 0.95]	0.75**	[0.63, 0.91]	0.71***	[0.58, 0.86]
Perceived procedural justice			0.63***	[0.49, 0.79]			0.66**	[0.51, 0.87]
SSD x PPJ			0.77*	[0.60, 0.99]			0.88	[0.67, 1.17]
Models with controls								
Constant	0.39***	[0.26, 0.59]	0.40***	[0.26, 0.60]	0.14***	[0.09, 0.23]	0.15***	[0.09, 0.24]
Subjective severity detention	0.93	[0.78, 1.11]	0.88	[0.73, 1.06]	0.85	[0.70, 1.04]	0.81	[0.66, 1.00]
Perceived procedural justice			0.73*	[0.56, 0.95]			0.78	[0.58, 1.04]
SSD x PPJ			0.83	[0.63, 1.09]			0.92	[0.69, 1.24]
Age at arrest	0.95***	[0.93, 0.97]	0.95***	[0.93, 0.97]				
Age at release					0.98*	[0.96, 1.00]	0.98	[0.96, 1.00]
Migration background	0.81	[0.57, 1.15]	0.78	[0.54, 1.10]	0.72	[0.47, 1.11]	0.71	[0.46, 1.09]
No partner at arrest	1.02	[0.73, 1.42]	1.04	[0.74, 1.45]	1.25	[0.85, 1.85]	1.26	[0.86, 1.87]
Property offense	0.85	[0.56, 1.30]	0.84	[0.55, 1.27]	1.57*	[1.01, 2.44]	1.51	[0.97, 2.35]
Drug offense	0.43**	[0.24, 0.73]	0.42**	[0.24, 0.72]	0.89	[0.40, 1.79]	0.85	[0.38, 1.73]
Other offense	0.73	[0.39, 1.31]	0.74	[0.40, 1.33]	0.84	[0.39, 1.65]	0.83	[0.39, 1.64]
Age at first arrest < 18	2.15***	[1.49, 3.12]	2.14***	[1.48, 3.11]	1.18	[0.77, 1.82]	1.15	[0.75, 1.78]
One or more detentions last five years	1.67**	[1.17, 2.38]	1.56*	[1.09, 2.24]	1.99**	[1.30, 3.06]	1.89**	[1.23, 2.92]
Lower or no educational level	0.71*	[0.51, 1.00]	0.72	[0.51, 1.01]	0.94	[0.63, 1.39]	0.94	[0.63, 1.40]
Detention length					0.72*	[0.53, 0.97]	0.71*	[0.52, 0.95]

Note. CI = confidence interval; LL = lower limit; UL = upper limit; SSD = Subjective severity detention; PPJ = Perceived procedural justice.

* $p < .05$. ** $p < .01$. *** $p < .001$.

SANCTION SEVERITY AND PROCEDURAL JUSTICE

Figure 1a

The Unadjusted Effect of Sanction Severity (Odds Ratio) on Subsequent Self-Reported Misconduct Across Evaluations of Procedural Justice

Note. The grey area marks the 95 % confidence interval. The dashed line marks an odds ratio of 1.0.

Figure 1b

The Unadjusted Effect of Sanction Severity (Odds Ratio) on Subsequent Self-Reported Reoffending Across Evaluations of Procedural Justice for the Subsample of First-Timers

SUPPLEMENTAL MATERIAL

Table A1*Spearman Correlations of all Variables*

Variable	1	2	3	4	5	6	7	8	9	10	11	12
Misconduct subsample												
1. Migration background	—											
2. No partner at arrest	-.04	—										
3. Violent offense	.04	.08*	—									
4. Property offense	-.05	.05	-.57***	—								
5. Drug offense	.03	-.13***	-.45***	-.22***	—							
6. Other offense	-.04	-.05	-.36***	-.17***	-.14***	—						
7. Age at first arrest < 18 yrs.	.18***	-.04	-.07*	.16***	.00	-.1**	—					
8. Detained last five years	.08*	-.01	-.15***	.34***	-.09*	-.11**	.31***	—				
9. Lower or no education	-.06	.06	.05	.01	.01	-.1**	.18***	.09**	—			
10. SSD	.03	-.21***	.04	-.1**	.05	.02	-.08*	-.13***	-.04	—		
11. PPJ	-.15***	.07	.07	-.07*	-.05	.05	-.16***	-.17***	.00	-.15***	—	
12. Age at arrest/release	-.3***	-.11**	-.23***	.09*	.15***	.1**	-.28***	.01	-.05	.07	.13***	—
13. Detention length	—	—	—	—	—	—	—	—	—	—	—	—
Reoffending subsample												
1. Migration background	—											
2. No partner at arrest	-.06	—										
3. Violent offense	.06	-.01	—									
4. Property offense	-.04	.1**	-.64***	—								
5. Drug offense	-.02	-.08*	-.34***	-.23***	—							
6. Other offense	-.03	-.05	-.33***	-.22***	-.12**	—						
7. Age at first arrest < 18 yrs.	.18***	-.01	-.07	.19***	-.04	-.13***	—					
8. Detained last five years	.06	.07*	-.22***	.43***	-.15***	-.13***	.34***	—				
9. Lower or no education	-.03	.09*	.01	.03	-.02	-.05	.21***	.1**	—			
10. SSD	.07*	-.24***	.07*	-.14***	.06	.03	-.09*	-.13***	-.04	—		
11. PPJ	-.12**	.02	.11**	-.14***	-.02	.05	-.2***	-.17***	-.01	-.17***	—	
12. Age at arrest/release	-.34***	-.05	-.18***	.06	.2***	.02	-.23***	.07	-.07*	.03	.17***	—
13. Detention length	.06	-.08*	.15***	-.22***	.07	.03	-.05	-.05	-.02	.09*	-.01	.02

Note. SSD = Subjective severity detention; PPJ = Perceived procedural justice. * $p < .05$. ** $p < .01$. *** $p < .001$.

SUPPLEMENTAL MATERIAL

Table A2

Generalized Logistic Regression Models Assessing the Main Effect of Sanction Severity and Interaction Effect of Sanction Severity and Perceived Procedural Justice per Outcome Measure for the Subsample of First-Timers with and without control variables

Variable	Misconduct (n = 358)				Reoffending (n = 366)			
	Model 1: Main Effect		Model 2: + Interaction Effect		Model 1: Main Effect		Model 2: + Interaction Effect	
	<i>Exp (b)</i>	95% CI [LL , UL]	<i>Exp (b)</i>	95% CI [LL , UL]	<i>Exp (b)</i>	95% CI [LL , UL]	<i>Exp (b)</i>	95% CI [LL , UL]
Models without controls								
Constant	0.39***	[0.31, 0.49]	0.36***	[0.28, 0.46]	0.15***	[0.11, 0.21]	0.14***	[0.10, 0.19]
Subjective severity detention	0.88	[0.68, 1.13]	0.82	[0.63, 1.07]	0.71*	[0.51, 0.98]	0.71	[0.50, 1.00]
Perceived procedural justice			0.55**	[0.38, 0.80]			0.84	[0.50, 1.43]
SSD x PPJ			0.73	[0.49, 1.06]			0.57*	[0.33, 0.97]
Models with controls								
Constant	0.44**	[0.25, 0.76]	0.44**	[0.25, 0.77]	0.11***	[0.05, 0.22]	0.10***	[0.05, 0.21]
Subjective severity detention	0.99	[0.75, 1.31]	0.93	[0.70, 1.24]	0.79	[0.56, 1.12]	0.81	[0.56, 1.17]
Perceived procedural justice			0.61*	[0.41, 0.91]			1.01	[0.58, 1.78]
SSD x PPJ			0.89	[0.57, 1.36]			0.53*	[0.30, 0.95]
Age at arrest	0.91***	[0.87, 0.94]	0.91***	[0.87, 0.94]				
Age at release					0.96*	[0.92, 1.00]	0.96	[0.92, 1.00]
Migration background	0.98	[0.57, 1.66]	0.85	[0.49, 1.47]	1.31	[0.67, 2.52]	1.38	[0.69, 2.68]
No partner at arrest	0.90	[0.54, 1.50]	0.89	[0.53, 1.50]	1.36	[0.71, 2.66]	1.36	[0.71, 2.68]
Property offense	0.63	[0.25, 1.49]	0.62	[0.24, 1.48]	0.86	[0.30, 2.11]	0.84	[0.29, 2.11]
Drug offense	0.35*	[0.11, 0.89]	0.32*	[0.10, 0.83]	0.37	[0.06, 1.40]	0.37	[0.06, 1.41]
Other offense	0.85	[0.35, 1.93]	0.87	[0.35, 2.00]	1.00	[0.38, 2.37]	1.02	[0.38, 2.43]
Lower or no educational level	0.76	[0.45, 1.27]	0.78	[0.46, 1.30]	1.10	[0.58, 2.12]	1.02	[0.54, 2.00]
Detention length					0.75	[0.40, 1.29]	0.69	[0.36, 1.20]

Note. CI = confidence interval; LL = lower limit; UL = upper limit; SSD = Subjective severity detention; PPJ = Perceived procedural justice.

* $p < .05$. ** $p < .01$. *** $p < .001$.

SUPPLEMENTAL MATERIAL

Table A3

Generalized Logistic Regression Models Assessing the Main Effect of Sanction Severity and Interaction Effect of Sanction Severity and Procedural Justice per Outcome Measure with and without control variables

Variable	Officially Registered Misconduct (N = 744)				Officially Registered Reoffending (N = 766)			
	Model 1: Main Effect		Model 2: + Interaction Effect		Model 1: Main Effect		Model 2: + Interaction Effect	
	<i>Exp (b)</i>	95% CI [LL , UL]	<i>Exp (b)</i>	95% CI [LL , UL]	<i>Exp (b)</i>	95% CI [LL , UL]	<i>Exp (b)</i>	95% CI [LL , UL]
Models without controls								
Constant	0.51***	[0.43, 0.59]	0.48***	[0.41, 0.57]	0.25***	[0.21, 0.30]	0.24***	[0.20, 0.29]
Subjective severity detention	0.86	[0.73, 1.02]	0.83*	[0.70, 0.99]	0.74**	[0.61, 0.89]	0.70***	[0.57, 0.85]
Perceived procedural justice			0.75*	[0.59, 0.95]			0.69**	[0.52, 0.90]
SSD x PPJ			0.75*	[0.58, 0.97]			0.86	[0.65, 1.14]
Models with controls								
Constant	0.22***	[0.14, 0.34]	0.22***	[0.14, 0.34]	0.07***	[0.04, 0.12]	0.07***	[0.04, 0.12]
Subjective severity detention	0.95	[0.79, 1.14]	0.93	[0.77, 1.13]	0.89	[0.73, 1.10]	0.87	[0.70, 1.07]
Perceived procedural justice			0.91	[0.69, 1.19]			0.80	[0.59, 1.08]
SSD x PPJ			0.80	[0.61, 1.06]			0.85	[0.63, 1.15]
Age at arrest	0.95***	[0.93, 0.97]	0.95***	[0.93, 0.97]				
Age at release					1.01	[0.99, 1.03]	1.01	[0.99, 1.03]
Migration background	1.04	[0.73, 1.48]	1.02	[0.71, 1.46]	1.14	[0.73, 1.77]	1.12	[0.72, 1.74]
No partner at arrest	1.25	[0.89, 1.76]	1.27	[0.90, 1.79]	1.69*	[1.13, 2.55]	1.72**	[1.15, 2.61]
Property offense	0.72	[0.47, 1.12]	0.72	[0.46, 1.11]	2.14***	[1.37, 3.35]	2.04**	[1.30, 3.21]
Drug offense	0.43**	[0.24, 0.75]	0.44**	[0.25, 0.76]	0.79	[0.34, 1.67]	0.77	[0.33, 1.63]
Other offense	1.15	[0.64, 2.06]	1.17	[0.65, 2.09]	0.61	[0.24, 1.34]	0.60	[0.24, 1.32]
Age at first arrest < 18	2.15***	[1.47, 3.16]	2.16***	[1.48, 3.18]	1.58	[1.00, 2.51]	1.56	[0.99, 2.50]
One or more detentions last five years	1.69**	[1.17, 2.43]	1.64**	[1.14, 2.37]	1.81**	[1.16, 2.81]	1.72*	[1.10, 2.68]
Lower or no educational level	1.13	[0.80, 1.61]	1.13	[0.79, 1.61]	1.02	[0.67, 1.55]	1.02	[0.67, 1.55]
Detention length					0.41***	[0.27, 0.60]	0.40***	[0.26, 0.59]

Note. CI = confidence interval; LL = lower limit; UL = upper limit; SSD = Subjective severity detention; PPJ = Perceived procedural justice.

* $p < .05$. ** $p < .01$. *** $p < .001$.