



# The internalization of and defiance against rules within prison: The role of correctional officers' autonomy-supportive and controlling communication style as perceived by prisoners

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## Abstract

While incarcerated, prisoners are subject to a vast number of rules. Drawing upon self-determination theory, the present study examined whether prisoners' perceptions of the degree to which prison officers communicate rules in an autonomy-supportive or controlling way related to prisoners' internalization of and defiance against rules, and whether this, in turn, related to their (mal)adaptive functioning in prison. Participants were 156 Belgian prisoners ( $M_{age} = 38.60$ ;  $SD = 11.68$ , 88.5% male) who filled out questionnaires concerning the study variables. Associations were tested using structural equation modeling. Results showed that, whereas a higher level of perceived autonomy-supportive communication style related via greater internalization of rules to prisoners' higher quality of life, a perceived controlling style was positively related to aggression and irritation vis-à-vis prison officers. Additional analyses suggested that an alternative model, where prisoners' maladaptive functioning is predictive of higher levels of perceived controlling communication, is equally valid.

**Keywords** Rules · Autonomy support · Control · Internalization · Prisoners

## Introduction

The prison context restricts not only an individual's physical liberty (i.e., prisoners are obliged to remain within the prison walls), but also one's psychological liberty, in the

sense that prisoners must abide by a vast number of rules, regulations, and prohibitions, which they may not personally endorse. For instance, prohibitions against certain means of communication (e.g., smartphone) and limitations on communications with others all together can be experienced as fairly intrusive. Indeed, as Liebling et al. (2011, p. 532) previously indicated: "prisons are places where principles on which human life and liberty depend are tested to the core". Previous research has demonstrated that the restrictive nature of the prison context can threaten inmates' sense of autonomy and well-being (Van der Kaap-Deeder et al. 2017). However, rules are not necessarily, in themselves, detrimental to individuals' sense of autonomy. Research among adolescents has shown that the *style* in which rules are communicated is especially important for understanding whether rules and restrictions will be accepted or rejected (e.g., Soenens et al. 2009). Specifically, whereas a controlling style of communication relates to more external motives for compliance and higher levels of defiance, an autonomy-supportive style relates to more favorable outcomes such as a higher level of internalization (i.e., endorsement) of rules (e.g., Vansteenkiste et al. 2014). In the current study, we draw on self-determination theory (SDT; Ryan and Deci

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2017; Vansteenkiste et al. 2010) to examine whether the perceived style by which correctional officers communicate rules to prisoners (i.e., autonomy-supportive or controlling) related to prisoners' internalization of and defiance against prison rules. Moreover, we aimed to investigate whether internalization and defiance, in turn, related to prisoners' well-being and their way of interacting with prison officers.

### The internalization of rules

Violations of prison rules are common in prison, with previous research indicating that about half of the prisoner population violated a prison rule in the past year (Sorensen and Cunningham 2010). Encouraging the internalization of rules, that is, the degree to which they are accepted and personally endorsed, therefore seems to be especially important as internalization is said to be crucial for sustainable adherence to rules (Grusec and Goodnow 1994). According to SDT (Ryan and Connell 1989; Ryan and Deci 2000), people may have different motives (or reasons) for complying with rules, which vary in their degree of internalization. An external regulation refers to compliance with rules because of externally imposed reasons, such as to avoid a punishment or the removal of privileges, or to attain contingent rewards or appreciation. Prisoners who abide by a rule because they are afraid of being sanctioned display external regulation. In this case, internalization is absent because the reason for abiding by the rule resides completely outside the prisoner. Further, introjected regulation is characterized by the avoidance of feelings of shame or guilt or the pursuit of feelings of pride and contingent self-esteem. Prisoners who follow a rule because they would otherwise feel ashamed or guilty constitutes an example of introjected regulation. In this case, the rule is only partially internalized, as the reason for abiding by the rule is not yet fully endorsed by the prisoner. In contrast, identified regulation represents a self-endorsed form of abiding by rules. Identified regulation involves the full internalization of a rule and is characterized by personal acknowledgement of the value of the rule. Prisoners who understand why a rule is important for their and others' functioning within prison, are thus said to display identified regulation. Note that this continuum of internalization is part of the broader self-determination continuum which also includes amotivation (i.e., lacking the intent to do a certain activity) and intrinsic motivation (i.e., doing an activity for its inherent satisfaction) (Ryan and Deci 2000), two constructs that were not assessed in the current study. Although it is likely that at least some prisoners lack intentionality to comply with the prison rules, either because of a lack of confidence to meet expectations or a lack of personal valuation of the rules (see Ryan et al. 2011), it is far less likely that prisoners abide by these rules because they experience these rules as inherently interesting and satisfying. Thus,

the process of intrinsic motivation would not be operative in this case.

Previous research on the degree of internalization as conceptualized within the SDT has mainly focused on children and adolescents, showing that higher levels of internalization of rules relate negatively to affiliation with deviant peers, and delinquent and anti-social behavior (Soenens et al. 2009). Also, in the classroom, a higher level of rule internalization has been found to relate negatively to self-reported bullying (Roth et al. 2011) and feelings of resentment, acting-out, and truancy (Aelterman et al. 2018). Interestingly, however, previous research has not been conclusive with regard to the correlates of introjection. That is, previous studies have shown introjection to be related to both adaptive as well as maladaptive variables (Moran et al. 2012; Van der Kaap-Deeder et al. 2016). In contrast to the internalization of rules, individuals can also be resistant and defy rules. Such oppositional defiance involves an individual's blunt rejection of the rule and a tendency to do the opposite of what is expected or requested (Deci and Ryan 1985; Vansteenkiste et al. 2014), thereby constituting a form of anti-internalization (Aelterman et al. 2016). Prisoners who smoke in the hallways, despite being prohibited to do so, could be said to display oppositional defiance. Previous studies have shown that oppositional defiance against classroom rules is related to feelings of resentment towards the teacher and in-class misbehavior as indexed by acting out, cheating, and truancy (Aelterman et al. 2018), while oppositional defiance against parental rules is associated with maladaptive outcomes such as internalizing and externalizing symptoms (e.g., Van Petegem et al. 2015). Additionally, Baudat et al. (2017) showed among adolescents that defiance against a parental request to change alcohol consumption, related to a lower motivation to change alcohol use. To the best of our knowledge, no previous research so far has explored the extent to which prisoners internalize and defy correctional rules and how this relates to their well-being.

### The style of communicating rules

Based on SDT (Ryan and Deci 2000), it can be expected that the way in which rules are communicated may play an important role in understanding when prisoners begin to internalize or instead defy rules. In previous research, an important distinction has been made between an autonomy-supportive and a controlling communication style (Grolnick et al. 1997; Soenens and Vansteenkiste 2010). An autonomy-supportive style is characterized by an explanation of the relevance and necessity of following the rule, the curious solicitation of the other person's feelings and thoughts about the rule, including the reasons for non-adherence to the rule, and the acknowledgement of possible difficulties

in following the rule. A controlling style, on the other hand, involves communicating rules through the use of forceful language, by threatening with punishments or with the removal of privileges, or by inducing feelings of guilt and shame.

Previous research has shown that an autonomy-supportive communication style is conducive to the process of internalization, whereas a controlling style inhibits this process and even increases individuals' level of oppositional defiance (Laurin and Joussemet 2017; Soenens et al. 2009; Van Petegem et al. 2015, 2017; Vansteenkiste et al. 2014). For example, Soenens et al. (2009), focusing on parents' prohibitions of friendships among adolescents, reported that parents' perceived autonomy-supportive communication style related to a higher level of rule internalization which, in turn, related negatively to deviant peer affiliation and involvement in problem behaviors. In contrast, a controlling style produced the opposite pattern of relations. This pattern of cross-sectional relations also held longitudinally and was found to apply both to adolescents' adherence to parental rules with respect to friendships and moral issues (Vansteenkiste et al. 2014). Additionally, Laurin and Joussemet (2017) showed in a prospective study among two-year-old toddlers that observed parental autonomy support predicted children's increasing committed compliance, which signals increasing internalization, whereas controlling strategies predicted deterioration in such compliance.

Currently, there are no studies available on the correlates of autonomy-supportive and controlling communication in contexts that are strongly characterized by authority and rule-setting, such as the prison context. It is, therefore, interesting to examine whether the previously found benefits of autonomy support and the detriments of control also apply to a population of prisoners. There is, however, some indirect evidence available. First, several previous studies have shown that prisoners who perceive a higher level of procedural justice (i.e., the degree to which decision-making within prison is perceived to be fair and transparent) exhibit a lower level of misconduct within prison (e.g., Reisig and Mesko 2009). Thus, perceptions of fairness and transparency, concepts that are closely linked with the notion of autonomy support (Ryan and Deci 2017, p. 596), go along with more rule-abiding behavior within prison. Second, in contrast, perceived strictness of prison rules, a harsh attitude of prison staff, and a lack of support from prison staff related positively to objectively registered prisoner misconduct within prison (Damboeanu and Nieuwbeerta 2016). Finally, Van der Laan and Eichelsheim (2013) showed in a sample of detained juvenile offenders that the perception of clear and fair rules related positively to prisoner autonomy, which was operationalized as the perceived possibility to regulate own behavior and to complain about rules. Examining whether autonomy support is also beneficial for prisoners,

is also interesting from a theoretical viewpoint. That is, SDT claims that all individuals should benefit from having their need for autonomy satisfied, regardless of individual characteristics (i.e., SDT's universality claim). So, even though prisoners are in a highly restrictive context, the question arises whether perceptions of a communication style that is supportive of their autonomy can still positively affect their internalization of rules and functioning within prison.

## The present study

Based on SDT (Deci and Ryan 2000), the current study aimed to examine several correlates of correctional officers' autonomy-supportive and controlling style of communicating prison prohibitions as perceived by the prisoners. First, we aimed to investigate the direct relations between prisoners' perceptions of correctional officers' autonomy-supportive and controlling communication style and indices of both prisoners' adaptive (i.e., quality of life and cooperation with prison officers) as well as their maladaptive (i.e., aggression and irritation towards prison officers) functioning within prison. Based on the literature outlined above, we expected that perceived autonomy-supportive communication would relate positively to adaptive outcomes and negatively to maladaptive outcomes, whereas an opposite pattern was expected with respect to perceived controlling communication, and we expected these associations to emerge above and beyond the contribution of correctional officers' setting of prohibitions as such (i.e., Hypothesis 1).

Second, we aimed to examine the possible intervening role of internalization of and defiance against prison rules on the above-mentioned relations. Specifically, perceived autonomy-supportive communication was expected to relate positively to prisoners' rule internalization (as indicated by a higher level of identified regulation and a lower level of external regulation) and negatively to prisoners' defiance, whereas an opposite pattern was predicted for perceived controlling communication. In terms of their associations with adjustment, we expected the different regulations to display a gradually changing pattern of relations with (mal) adaptive outcomes depending on their location on the internalization continuum. Thereby, we expected that identified regulation and oppositional defiance would yield the most pronounced associations as they are situated at the extreme ends of the continuum. However, with respect to introjection, we expected the results to be more mixed, in line with previous research (Moran et al. 2012; Van der Kaap-Deeder et al. 2016). We then examined whether these different regulatory subtypes would serve as explanatory mechanisms in the relation between perceived communication style and adjustment outcomes (i.e., Hypothesis 2).

Finally, in a supplementary analysis, we also tested an alternative model where the perceived communication style was modeled as a dependent variable with prisoners' (mal) adaptive functioning being modeled as a predictor. This is because theoretically (e.g., Liebling 2011) we would expect a reciprocal relation between officers' communication style and prisoners' functioning. For instance, a prisoner's overt aggressive behavior and irritation may not only be the result of an officer's controlling approach, but it may also elicit such a communication style.

## Method

### Participants

The majority of the sample ( $N = 156$ ;  $M_{age} = 38.60$ ;  $SD_{age} = 11.68$ ) consisted of males (88.5%) with a Belgian nationality (86.0%). Most participants (59.9%) had at least one child, and a minority (9.0%) was currently married. Additionally, the highest educational qualification achieved by most participants was lower secondary education or less (52.6%). With respect to participants' sentencing status, most were convicted (65.0%), with an average sentence length of almost 7 years, while 26.1% was accused and 8.3% was interned<sup>1</sup> (this information was missing for one participant). Almost half of the participants (42.0%) had been previously incarcerated. Reason for imprisonment was first reported by the prisoners and later coded based on a subscale of the European Addiction Severity Index—Treatment Demand Indicator (EuropASI-TDI; Kokkevi et al. 1993; McLellan et al. 1980), a standardized screening measurement mainly used in individuals with substance-use related problems. The following reasons for the imprisonment were reported: 32.1% crimes of violence; 18.6% drug-related crimes, 9.6% crimes of property, 15.4% other type of crimes (e.g., distribution of child pornography). Additionally, 22.4% of the prisoners were detained because of multiple crimes (this information was missing for three participants). The relatively long average sentence length and high frequency of serious crimes in the current sample likely reflects the tendency in Belgian sentencing policy to assign individuals to electronic monitoring instead of detention in prison when sentenced to three years or less ("Elektronisch toezicht als alternatieve gevangenisstraf" 2016), as well as our sampling

frame, which included prisons housing prisoners with longer sentences.

### Procedure

The study was conducted between December 2014 and March 2016 in seven prisons within Flanders, Belgium. Once approval for this study was obtained from the Federal Public Service of Justice and the ethical committee of Ghent University (no. 2014/38), we contacted and informed the board of directors of each prison concerning the study objectives and methodology. Subsequent practical arrangements were discussed and made with each of the prison's internal contact person. All prisoners were informed about the study through a flyer describing the main goal of the study (i.e., gaining insight in prisoners' well-being) and the questionnaire procedure. On this flyer, prisoners could indicate whether and when they wanted to participate. Flyers were distributed and collected via the prison's internal mailing system. Based on this information, a schedule was made for the individual testing of each prisoner willing to participate in this study. Participants who were deemed to be too dangerous by the board of directors, who had a sanction (e.g., solitary confinement) at the time of the assessment, or who had insufficient Dutch language skills, were subsequently excluded from participation. Although prisoners' names were gathered during recruitment, these were discarded and not collected as part of the subsequent enrollment process.

The questionnaires were first pilot-tested among two prisoners to ensure that all items were clear and understandable. Based on this pilot test, we made a few minor changes to some of the items (e.g., prisoners preferred a Likert scale instead of a Visual Analogue Scale). All questionnaires were filled out individually in a private room within the prison, in the presence of the second author. Participants first received an information letter concerning the study aims and procedure, which were also explained orally. Participants were informed that participation was completely voluntary and that they could cease their participation at any moment, without any repercussions. Participants did not receive financial compensation. Participants filled out an informed consent. This was followed by a paper-and-pencil administration of the questionnaires during which the participant was welcome to ask questions. As seven participants experienced difficulties in reading the questionnaires, these were read aloud to them. After completing the questionnaire, participants received a debriefing (both orally and in writing) in which the study aims were explained in more detail.

<sup>1</sup> Internment is a safety measure for mentally ill offenders who are regarded not to be responsible for their crime due to a psychiatric disorder or intellectual disability. The internment measure is intended to prevent harm to society and to treat the interned person (see also Vandeveldde, Soyez, Vander Beken, De Smet, Boers, & Broekaert, 2011 for an overview of internment in Belgium).

## Measures

### Background variables

We measured several background variables including age, gender, nationality, education, marital status, and parental status (i.e., having children or not). Additionally, a number of variables related to the current incarceration and participants' incarceration history were coded, including the prison (one of seven), sentencing status (i.e., accused, convicted, interned), prison regime (i.e., open, half-open, closed), time spent in prison, sentence length (for those who were convicted), previous imprisonment, and reason for current imprisonment.

### Perceived degree of prohibition

Participants rated the degree to which the prison officers communicated prohibitions with respect to four topics, that is, their use of alcohol (i.e., "The officers say that I am not allowed to drink alcohol."), use of drugs (i.e., "The officers say that I am not allowed to take drugs."), social contacts within prison (i.e., "The officers prohibit me to socialize with certain people within prison."), and means of communication (i.e., "The officers indicate that I am not allowed to use certain means of communication (e.g., telephone, internet)."). Each of these four statements was followed by two substatements: "This applies to my officers." and "My officers often point out this prohibition.", which were rated on a Likert scale ranging from 1 ("Totally disagree") to 5 ("Totally agree"). Responses across these eight items were averaged to produce a general measure of perceived degree of prohibition. This scale was found to be internally consistent ( $\alpha = 0.85$ ).

### Perceived styles of prohibition

After indicating degree of prohibition, participants were asked to indicate prison officers' perceived style for communicating these prohibitions. They were instructed to think back to the prohibitions as indicated in the previous questions (examining prison officers' degree of prohibitions) and asked to rate the communication style their prison officers employ with respect to those prohibitions. Prior to responding to these style-related items, the following stem was provided: "When the officers point out a prohibition, how do they do this?". Responses were indicated on a 5-point Likert-type scale from (1 = "Not at all true"; 5 = "Completely true"). Based on a similar measure in the parenting domain (Soenens et al. 2009), participants then responded to 5 autonomy-supportive items (e.g., "They give a meaningful explanation about why it is important for me to stick to these prohibitions.") and 8 controlling items (e.g., "They

are less friendly to me for a while when I have broken a prohibition."). Both the autonomy support ( $\alpha = 0.73$ ) as well as the control ( $\alpha = 0.70$ ) subscale were found to be internally consistent.

### Internalization of rules

Participants' motives for abiding by the prison rules were assessed with an adapted version of the Self-Regulation Questionnaire—Parental Rules (Soenens et al. 2009). This questionnaire was originally developed to assess adolescents' motivation for following parental rules and was slightly adapted to make the items suitable for the prison context. Items were preceded by the stem "I follow the rules within prison, because...". Three different motives were assessed that varied in their degree of internalization: external regulation (6 items; e.g., "... others would otherwise punish me."), introjected regulation (6 items; e.g., "... I would feel guilty if I would not do so."), and identified regulation (6 items; e.g., "... these rules are well aligned with my values."). Participants responded on a 5-point Likert-type scale (1 = "Not at all true"; 5 = "Completely true"). All three subscales were found to be internally consistent (external:  $\alpha = 0.70$ ; introjected:  $\alpha = 0.89$ ; identified:  $\alpha = 0.89$ ).

### Oppositional defiance against prohibitions

The degree to which participants rejected the rules within prison was assessed by a scale originally assessing oppositional defiance with respect to parental rules (Vansteenkiste et al. 2014). Items were slightly adapted to make them appropriate for the prison context. This scale consisted of four items (e.g., "I rebel against the rules of the prison.") and was found to be internally consistent ( $\alpha = 0.92$ ).

### Quality of life

The EUROHIS-QOL 8-item index (European Health Interview Survey—Quality of Life; Schmidt et al. 2006), developed from the World Health Organization—Quality of Life measures (i.e., WHOQOL-100 and the WHOQOL-BREF), was used to assess participants' subjective quality of life. This scale assesses the degree to which individuals are satisfied with themselves (e.g., "How satisfied are you with yourself?"), their physical health (e.g., "How satisfied are you with your health?"), their social relationships (e.g., "How satisfied are you with your personal relationships?") and features of their environment (e.g., "How satisfied are you with the conditions of your living place?"). Items were rated on a 5-point Likert scale ranging from 1 ("very bad"/"very unsatisfied"/"not at all") to 5 ("very good"/"very satisfied"/"completely"). Scores across the eight items were

summed to create a general index of quality of life, which was found to be internally consistent ( $\alpha=0.79$ ).

### Aggression

Participants' degree of aggression within prison was assessed with a shortened version (13 items; Hornsveld et al. 2009) of the Buss-Perry Aggression Questionnaire (Buss and Perry 1992). Items were preceded by the stem "Within prison" and assessed four types of aggressive responses: physical aggression (e.g., "... sometimes I cannot suppress the urge to hit someone."), verbal aggression (e.g., "... I often quarrel."), anger (e.g., "... I need to put effort in keeping my calm."), and hostility (e.g., "... I feel bitter."). Participants responded on a 5-point Likert-type scale (1 = "Not at all true"; 5 = "Completely true"). The questionnaire proved to be internally consistent ( $\alpha=0.83$ ).

### Cooperation with and irritation towards prison officers

Participants rated the degree to which they felt they could get along with their prison officers (four items; e.g., "I can get along well with the officers"). Additionally, they indicated the degree to which they felt irritated by their prison officers (four items; e.g., "I am annoyed by the officers"). These items were based on a scale previously used in the context of spaceflight (Goemaere et al. in revision). Both scales were internally consistent (cooperation:  $\alpha=0.79$ ; irritation:  $\alpha=0.90$ ).

### Plan of analysis

To examine our two hypotheses, path models were tested using MPlus 8 (Muthén and Muthén 1998–2012) with robust maximum-likelihood as estimator. In total, only 1.0% of the data was missing. We employed several indices to evaluate the model fit: the  $\chi^2$  test, the comparative fit index (CFI), the standardized root mean square residual (SRMR), and the root mean square error of approximation (RMSEA). An acceptable fit was indicated by  $\chi^2/df$  ratio of 2 or below, CFI values of 0.90 or above, and SRMR and RMSEA values of around .08 or below (Hu and Bentler 1999; Kline 2005).

In total, four different structural models were tested. To examine Hypothesis 1, the first model tested for the relations of perceived autonomy-supportive style, perceived controlling style, and degree of prohibition with the indicators of adaptive (i.e., quality of life and cooperation with the prison guards) and maladaptive (i.e., aggression and irritation towards the prison guards) functioning. To examine Hypothesis 2, we tested two models. First, we examined relations of perceived autonomy-supportive style, perceived controlling style, and degree of prohibition with prisoners' degree of rule internalization and defiance. Second, we tested the

full hypothesized model by examining the possible intervening role of rule internalization and defiance in the relations between the perceived autonomy-supportive style, perceived controlling style, and degree of prohibition on the one hand and the indicators of (mal)adaptive functioning on the other hand. To test the indirect effects, we used bootstrapping (using 1000 draws), a nonparametric resampling procedure (Preacher and Hayes 2008). Finally, in our fourth model, we examined an alternative model with prisoners' (mal)adaptive functioning being modeled as a predictor of the perceived communication style and degree of prohibition with these latter two, in turn, being modeled as predictors of prisoners' motives.

## Results

### Descriptive statistics and preliminary analyses

Descriptive and bivariate analyses were first carried out. These results can be found in Table 1. Interestingly, prisoners in general perceived similar levels of autonomy support and control with regard to the communication of prohibitions (paired samples *t* test:  $t(154) = -3.46$ ,  $p = 0.27$ ). Additionally, they reported to experience moderate levels of autonomy support and control, indicating that they did not perceive the communication of prohibitions to be highly autonomy-supportive nor highly controlling. They also reported that they perceived their prison officers to communicate prohibitions in a low to moderate degree. With respect to prisoners' motives for following prison rules, prisoners indicated that they sometimes or to a moderate degree experienced identified, introjected, and external regulation while they indicated a relatively low level of defiance against these rules. With regard to the outcomes, prisoners reported moderate levels of both adaptive and maladaptive functioning indicating that they perceived their functioning to be not good but also not poor.

Correlations among the study variables indicated that perceived autonomy-supportive communication style related positively to identified and introjected regulation of prison rules and negatively to external regulation and defiance, whereas perceived controlling communication style related only positively to external regulation. The autonomy-supportive communication style was unrelated to the controlling communication style. Additionally, a higher level of perceived controlling style related to a higher perceived degree of prohibitions. With respect to prisoners' functioning, the results showed that perceived autonomy-supportive communication related positively to quality of life and cooperation and negatively to irritation, whereas perceived controlling communication related positively to aggression and irritation and negatively to cooperation. Further, both identified

**Table 1** Means and correlations of the study variables

	M (SD) <sup>a</sup>	1	2	3	4	5	6	7	8	9	10
<b>Perceived communication style</b>											
1. Autonomy-supportive	2.80 (0.92)	–									
2. Controlling	3.16 (0.83)	–0.09	–								
3. Degree of prohibition	2.27 (0.98)	0.01	0.39***	–							
<b>Internalization</b>											
4. Identified regulation	3.44 (1.00)	0.32***	–0.11	0.12	–						
5. Introjected regulation	2.82 (1.10)	0.21**	–0.06	0.13	0.73***	–					
6. External regulation	3.27 (0.91)	–0.18*	0.16*	0.11	0.09	0.19*	–				
7. Defiance	1.62 (0.97)	–0.17*	0.12	0.11	–0.48***	–0.35***	–0.14	–			
<b>Psychological functioning</b>											
8. Quality of life	3.26 (0.71)	0.24**	–0.08	0.03	0.37***	0.22**	–0.04	–0.21**	–		
9. Aggression	2.13 (0.68)	–0.12	0.34***	0.24**	–0.28***	–0.17*	–0.01	0.51***	–0.29***	–	
10. Cooperation	3.61 (0.76)	0.38***	–0.19*	–0.05	0.43***	0.39***	–0.16*	–0.28***	0.31***	–0.28**	–
11. Irritation	2.64 (1.10)	–0.46***	0.36***	0.17*	–0.32***	–0.20*	0.19*	0.33***	–0.22**	0.37***	–0.56***

<sup>a</sup>All constructs were assessed on a scale ranging from 1 to 5

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

and introjected regulation related positively to quality of life and cooperation and negatively to aggression and irritation, while defiance showed the opposite pattern. Finally, external regulation related negatively to prisoners’ cooperation and positively to their irritation.

With respect to the background variables, results of a MANOVA revealed that there were no differences in the study variables depending on the background variables ( $F(11, 112)$  ranging between 0.77 and 1.10;  $p > 0.05$ ), with two exceptions. First, female prisoners ( $M = 3.79$ ;  $SD = 0.64$ ) reported a higher level of external regulation than male prisoners ( $M = 3.20$ ;  $SD = 0.92$ ) ( $F(1, 122) = 7.66$ ;  $p < 0.01$ ). Second, a longer time spent in prison related to higher levels of perceived controlling communication, defiance, aggression, and irritation and to lower levels of perceived autonomy-supportive communication and quality of life ( $F(1, 122)$  ranging between 4.12 and 27.15;  $p < 0.05$ ). Based on these findings, we controlled for gender and time spent in prison by regressing the dependent variables in each model on these background variables.

**Primary analyses**

**Hypothesis 1: The relation between perceived style and perceived degree of prohibition and the outcomes**

In a first structural model, we investigated the relations of perceived autonomy-supportive style, perceived controlling style, and perceived degree of prohibition with the indicators of adaptive and maladaptive functioning. This model showed an adequate fit ( $\chi^2/df = 1.36$ ; CFI = .99; SRMR = 0.03; RMSEA = 0.05). Specifically, we found that perceived autonomy-supportive communication style related positively to quality of life ( $\beta = 0.23$ ;  $p < .01$ ) and cooperation ( $\beta = 0.37$ ;  $p < 0.001$ ), while relating negatively to irritation ( $\beta = -0.43$ ;  $p < 0.001$ ). The relation with aggression was not significant ( $\beta = -0.07$ ;  $p > 0.05$ ). Perceived controlling communication style, on the other hand, related positively to aggression ( $\beta = 0.27$ ;  $p < 0.001$ ) and irritation ( $\beta = 0.27$ ;  $p < 0.01$ ), whereas the relations with quality of life ( $\beta = -0.08$ ;  $p > 0.05$ ) and cooperation ( $\beta = -0.13$ ;  $p > 0.05$ ) were not significant. Perceived degree of prohibition was unrelated to any of the four outcomes ( $\beta$  ranging between 0.01 and 0.11;  $p > 0.05$ ).

**Hypothesis 2: The intervening role of internalization and defiance**

In a second structural model, we examined the relation of perceived autonomy-supportive style, perceived controlling style, and perceived degree of prohibition with prisoners’ internalization of prison rules and their defiance against these rules. This model showed an excellent fit

( $\chi^2/df = 1.36$ ; CFI = 0.99; SRMR = 0.03; RMSEA = 0.05). Specifically, we found that perceived autonomy-supportive communication style related positively to identified ( $\beta = 0.30$ ;  $p < 0.001$ ) and introjected ( $\beta = 0.19$ ;  $p < 0.05$ ) regulation, while not being related to external regulation ( $\beta = -0.17$ ;  $p > 0.05$ ) and defiance ( $\beta = -0.14$ ;  $p > 0.05$ ). Further, perceived controlling communication style was unrelated to the motives ( $\beta$  ranging between  $-0.13$  and  $0.09$ ;  $p > 0.05$ ). Finally, perceived degree of prohibition related positively to identified ( $\beta = 0.17$ ;  $p < 0.05$ ) and introjected ( $\beta = 0.18$ ;  $p < 0.05$ ) regulation, whereas it was unrelated to external regulation ( $\beta = 0.07$ ;  $p > 0.05$ ) and defiance ( $\beta = 0.06$ ;  $p > 0.05$ ).

In a third structural model, we investigated the full hypothesized model with the motives and defiance intervening in the relations of the perceived style and perceived degree of prohibition with indicators of adaptive and maladaptive functioning. This model showed an adequate fit ( $\chi^2/df = 1.43$ ; CFI = 0.98; SRMR = 0.04; RMSEA = 0.05). As displayed in Fig. 1, a perceived autonomy-supportive communication style and the perceived degree of prohibition related positively to identified and introjected regulation, whereas a perceived controlling communication style was unrelated to the motives and defiance. Identified regulation, in turn, related positively to prisoners' quality of life. In addition, external regulation related negatively to cooperation, whereas defiance related positively to aggression and irritation. Notably, we also found three significant direct effects. Namely, a direct positive association was found between perceived controlling communication style and irritation and aggression, whereas a direct negative association was found between perceived autonomy-supportive style and irritation. Finally, we found one significant indirect effect: perceived autonomy-supportive style related via identified regulation to quality of life (95% CI [0.023, 0.229],  $\beta = 0.13$ ,  $p = 0.02$ ).

### Supplementary analysis

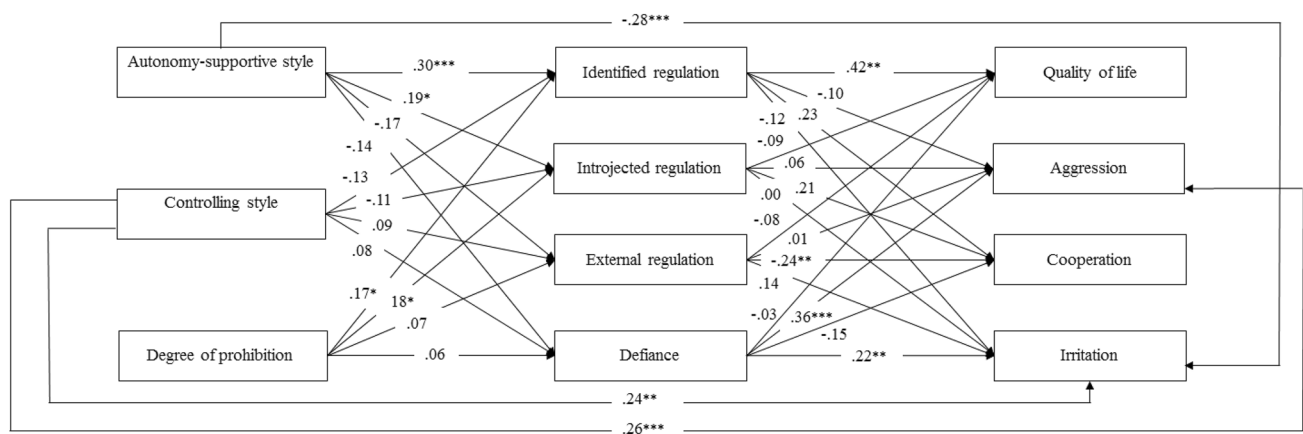
In an alternative model, we examined whether prisoners' (mal)adaptive functioning predicted their perceptions of the prison officers' degree of autonomy support and control and the degree of prohibition, with these perceptions of the communication style and degree of prohibition relating to prisoners' motives. This alternative model showed an adequate fit ( $\chi^2/df = 1.65$ ; CFI = 0.96; SRMR = 0.06; RMSEA = 0.06). As displayed in Fig. 2, a higher level of aggression related positively to perceived controlling communication and degree of prohibition. Additionally, irritation related negatively to perceived autonomy-supportive and positively to perceived controlling communication.

## Discussion

Drawing upon Self Determination Theory (SDT; Deci and Ryan 2000), we aimed to examine the correlates of prisoners' perceptions of prison officers' use of autonomy-supportive and controlling styles of communicating about prohibitions. Previous studies exploring the effects of such communication styles, which have mostly focused on the parent–child relationship, suggest that an autonomy-supportive style is conducive to the internalization of rules, whereas a controlling style may hinder this internalization process and even predicts defiance against these rules (e.g., Vansteenkiste et al. 2014; Van Petegem et al. 2015, 2017). As rules are eminently present within prison and violations of these rules are common (e.g., Sorensen and Cunningham 2010), an examination of factors that could foster or hinder the personal acceptance of rules in this context is very relevant. We therefore aimed to investigate the possible intervening role of motives reflecting different degrees of internalization of prison rules and defiance against prison rules in the relations between prisoners' perceptions of the autonomy-supportive and controlling communication style of prison officers and prisoners' adaptive and maladaptive functioning within prison. Five findings deserve being discussed.

First, our results are in line with previous studies showing a link between an autonomy-supportive communication style and greater well-being, and a lower level of antisocial behavior, as well as between a controlling communication style, poorer well-being and more antisocial behavior (e.g., Joussemet et al. 2008; Mouratidis et al. 2010; Soenens et al. 2009). Specifically, we found that perceived controlling communication related positively to aggression and irritation. Additionally, perceived autonomy-supportive communication related positively to quality of life and cooperation with prison officers, while being negatively related to irritation towards prisoner officers. This latter finding is interesting, as most studies on the correlates of autonomy support and control have found evidence for a bright and dark path of human functioning (e.g., Haerens et al. 2015). That is, whereas autonomy support has been found to relate most strongly to positive outcomes, control has been found to be most strongly related to negative outcomes (see also Vansteenkiste and Ryan 2013). The strong relation between autonomy support and irritation as found in this study would need further exploration to see what drives this relation, but seems to suggest that autonomy support has a preventive effect on irritation. That is, because the basic attitude of autonomy support is one of curiosity, sincere interest in and openness towards prisoners' feelings, thoughts, and concerns (Vansteenkiste and Soenens 2015). With an autonomy-supportive prison officer, prisoners may have the impression

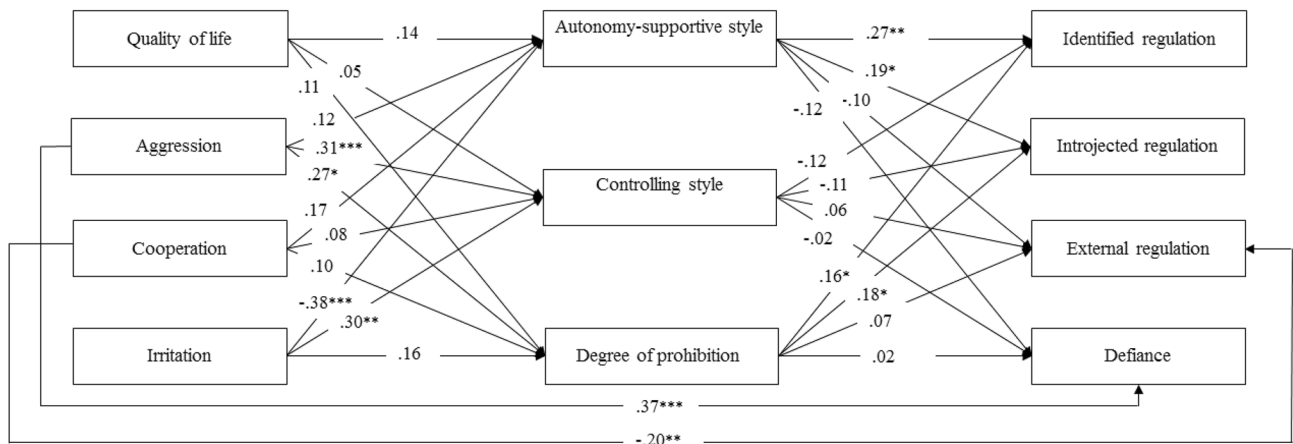




Note. The intercorrelations between variables were estimated, but are not shown for reasons of parsimony.

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

**Fig. 1** Structural model depicting the relation between perceived style and perceived degree of prohibition, internalization and defiance, and adaptive and maladaptive functioning



Note. The intercorrelations between variables were estimated, but are not shown for reasons of parsimony.

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

**Fig. 2** Structural model depicting the relation between adaptive and maladaptive functioning, perceived style and perceived degree of prohibition, and internalization and defiance

that their negative affect is acknowledged and that there is room for them to voice how they feel, such that their irritation does not surface so easily or fades quickly.

In all models we controlled for prisoners’ perceived degree of prohibitions communicated by the prison officers. We found that although the perceived degree of prohibition related to a higher level of perceived controlling communication style, aggression and irritation at the correlational level, the relations with aggression and irritation disappeared when taking perceived communication style into account. Interestingly, perceiving more prohibitions related also to higher levels of identified and introjected regulation. This finding accords well with previous studies

showing that both autonomy support and structure (of which rule setting is a part) are important for individuals’ self-regulation (Sierens et al. 2009). Note, however, that this finding was only observed in the structural model (and not at the correlational level) and that the degree of prohibition also related to higher levels of aggression. To explain both the positive and the negative effects of the degree of prohibition, it would be good to explore the possible combined and possibly synergistic effect of autonomy support and structure in future studies within the prison context. That is, structure, including rule setting but also providing the necessary guidance to prisoners such that they feel capable to meet expectations, might

be only or especially beneficial when it is combined with an autonomy-supportive communication style (Jang et al. 2010; Koestner et al. 1984; Vansteenkiste et al. 2012). These findings have important practical implications, as they suggest that efforts to promote prisoner's rule internalization and well-being may be achieved via changes in the communication of prison prohibitions *without* limiting the number of prohibitions (many of which are necessary to maintain security in the prison context, and therefore difficult to abandon).

Second, we found some evidence for the mediating role of internalization (but not defiance) in the above-mentioned relations. Specifically, results showed that a perceived autonomy-supportive style related to a higher level of identified regulation, which, in turn, related to a higher quality of life. This indicates that for prisoners, in order to personally endorse the rules that apply within the prison context, it is important that such rules are communicated in a way that respects and is sensitive for the prisoners' sense of autonomy. We also found that a perceived autonomy-supportive style related positively to prisoners' introjected regulation, a finding congruent with some previous studies (Lim et al. 2016 and Vansteenkiste et al. 2014) but in contradiction with other studies, which reported a positive relation between autonomy-thwarting and introjection (e.g., Assor et al. 2004). Future research is needed to explore what could be underlying this relation between autonomy support and introjection among prisoners. One possibility is that the domain to which rules belong plays a critical role. Although the content of rules was not specified, prisoners may have interpreted them as sticking to moral rules, such as the avoidance of antisocial behavior. Congruent with previous work among adolescents, this may help explain why introjected regulation was located closely to identified regulation. Presumably, the non-adherence to moral rules, when perceived as personally significant, more easily goes along with feelings of guilt. Under such circumstances, an autonomy-supportive approach may more easily predict introjected regulation.

Additionally, previous research has found introjection to be related to both adaptive and maladaptive outcomes, which was partially confirmed in the current study (see Assor et al. 2009). That is, at the correlational level, introjection related positively to external regulation while also relating positively to identification, quality of life, and cooperation and negatively to defiance, aggression, and irritation. These relations were, however, no longer significant in the structural models. Nonetheless, it would be interesting to further explore the significance of introjection within the prison context. Perhaps the current findings can be explained by the conflicting nature of introjected regulation. That is, when introjection is high, rules may carry general importance, yet, different from identified regulation, they lack personal

meaning such that rule adherence will require considerable self-control and effort (Vansteenkiste et al. 2018).

Third, perceived autonomy-supportive communication and perceived controlling communication continued to have a direct association with irritation and aggression (only with respect to a controlling style) even after including the motives and defiance in the model. Therefore, internalization does not seem to be the sole mechanism linking perceived communication style and these outcomes. The satisfaction and frustration of the basic psychological needs for autonomy (i.e., experiencing a sense of volition), competence (i.e., feeling successful in the achievement of important goals), and relatedness (i.e., feeling connected with important others) might be other possible mechanisms in these relations. Indeed, previous research has found need satisfaction and need frustration to intervene in the relation between autonomy support and adaptive outcomes, and between control and maladaptive outcomes, respectively (e.g., Jang et al. 2016). Also, the degree of perceived legitimacy, or the perceived rightfulness of authority (Liebling 2011), could serve as an intervening variable between the style of communication and prisoners' maladaptive functioning within prison. For instance, prisoners who perceive the prison officers to be more empathetic and responsive to their needs when communicating rules, are perhaps also more likely to perceive the authority of the prison officers to be more legitimate and are therefore more likely to display less maladaptive functioning within prison.

Another possibility is that part of the direct association between perceived style of communication and the maladaptive outcomes (i.e., irritation and aggression) reflects a prisoner-driven effect, where prisoners who feel more irritated and exhibit a higher level of aggression perceive prison officers' behavior as more controlling and less autonomy-supportive and/or elicit more controlling and less autonomy-supportive reactions from these figures. To examine whether prisoners' externalizing problems indeed relate to perceiving more control and less autonomy support, a possible interesting avenue for future research would be to examine how prisoners high in irritation and aggression interpret social and emotional cues, especially because previous research among children has shown that conduct problems related to misinterpreting facial emotional expressions as anger (Airdrie et al. 2018). Also, differentiating between different types of aggression could be informative. Perhaps reactive aggression (i.e., provoked, defensive aggression) can be seen more as an outcome of officers' communication style, whereas proactive aggression (i.e., unprovoked, instrumental aggression) is more likely to provoke a certain communication style from officers (e.g., Hubbard et al. 2001). Our supplementary analyses provide partial support for such hypotheses, as results indicated that only prisoners' maladaptive (and not adaptive) functioning related negatively

to perceived autonomy support and positively to perceived control and degree of prohibition. Although longitudinal and experimental research is needed to further explore these relations, this study seems to suggest that prison officers' communication style and prisoners' maladaptive functioning are reciprocally related to one another.

Fourth, although defiance was related to the outcomes (i.e., aggression and irritation), it was unrelated to the perceived communication style of prison officers. As this is not in line with previous research in the parenting domain (e.g., Van Petegem et al. 2017), this finding seems to suggest that defiance may have different roots than the communication style in the prison context. Indeed, we found defiance to be enhanced among prisoners who had spent more time in prison previously, who had a longer prison sentence, who had no children and who were male.

Fifth, we found that autonomy support and control were unrelated to one another. In line with previous studies showing a non-significant or a modest relation between these two constructs (e.g., Haerens et al. 2015, Jang et al. 2016), this finding indicates that these two constructs cannot be situated on the same continuum but instead represent rather separate, independent constructs. This implies that prison officers can display a mixture of both autonomy-supportive and controlling behaviors. Future research is necessary to determine what causes the adoption of a more autonomy-supportive or more controlling approach, thereby taking into account characteristics of the situation, the prisoner, and the prison officer. Also, it would be interesting to look at profiles combining different levels of perceived autonomy support and control, and to examine whether these profiles differ in terms of internalization and (mal)adaptive functioning. For instance, prisoners who perceive the officers as high on both autonomy support and control might report more irritation and aggression when compared to prisoners perceiving officers to be predominantly high on autonomy support (Haerens et al. 2018).

## Limitations and directions for future research

As the first study to empirically investigate the correlates of prisoner officers' communication style and degree of prohibition as perceived by prisoners within the prison context, we believe that this study provides important new insights regarding factors that contribute to the internalization of prison rules and prisoners' adaptive functioning within prison. However, future research would benefit from addressing some of the limitations of the current study. First, compared to the general Belgian prison population (Van Malderen et al. 2011), our sample was rather selective and homogenous as it consisted of relatively old prisoners,

all of whom were Dutch-speaking. Additionally, prisoners who had a sanction or who were deemed to be too dangerous were excluded from the present study, yet, the study of internalization of and defiance against prison rules might be especially relevant for these individuals. Future studies with more heterogeneous samples are needed to explore the generalizability of the current findings. Such studies could also include more interned prisoners who, although their number within prison is decreasing due to new psychiatric facilities, still represent a particularly vulnerable population within Belgian prisons (see also Vandeveldel et al. 2011). Other exclusion criteria (e.g., mastering the Dutch language), as well as prisoners' willingness to volunteer for the study may have further led to a homogeneous and self-selective sample. Additionally, our sample size was rather small, especially given the adopted analytic strategy. Future research with larger samples would be needed to replicate the current findings.

Another limitation relates to our focus on self-reported internalization of rules and the level of defiance against rules. It would be interesting for future studies to also include objective violations of imposed rules. By doing so, it would be possible to examine whether the style of prohibiting relates to the degree of actual rule-violation. As previous studies, among children and adolescents, have shown that an autonomy-supportive style of communicating rules relates positively to compliance with the rules, whereas a controlling style relates negatively to compliance (Bjelland et al. 2015; Laurin and Joussemet 2017), we would expect to find similar results among prisoners. Additional avenues for future work could include investigating possible cross-cultural variations in the relations shown here in different penal systems (van Mastrigt 2015) and examinations of the relation between perceived procedural justice and an autonomy-supportive communication style. The inclusion of the perspective of prison officers concerning their own communication style and also the sources of this style could also be interesting for future studies. In this respect, factors that have previously been linked to prisoner officers' work stress such as experiencing greater job demands and experiencing less support from coworkers and supervisors (Steiner and Wooldredge 2015) might be interesting to assess.

Finally, as this study was correlational in nature, no causal inferences can be drawn. Future longitudinal studies are needed to gain more insight into the dynamics of prohibition communication styles, the internalization of rules, and prisoners' (mal)adaptive functioning. This is especially important as previous research (as well as our supplementary analysis) suggest that communication style, the internalization of rules, and individuals' (mal)adaptive functioning are reciprocally associated over time (Vansteenkiste et al. 2014). Additionally, experimental studies concerning the effects of communication style on individuals' internalization

are needed. Promising findings were already reported by Savard et al. (2013) who found that experimentally provided autonomy support contributed to a greater internalization and acceptance of engaging in an important yet emotionally draining clinical task among adolescents with severe emotional and behavioral problems.

## Theoretical and practical implications

This study has important implications for SDT, as it shows that previously found correlates of autonomy-supportive and controlling communication in diverse contexts can also be found within a prison context. Thus, the benefits of autonomy support and the detriments of control also apply to a context that is characterized by a high level of rule-setting and authority, a finding that provides further evidence for SDT's universality claim (i.e., stating that the psychological needs for autonomy, competence, and relatedness are present in all individuals). This study therefore shows that an autonomy-supportive approach is recommendable, also (and foremost) among vulnerable groups such as prisoners. Additionally, although this study was primarily based on an SDT framework, the current findings also accord well with offender rehabilitation models, such as the Risk Needs Responsivity Model (RNR; Andrews and Bonta 2010) and the Good Lives Model for Offender Rehabilitation (GLM; Ward and Stewart 2003).

The RNR model consists of three principles, namely the risk (i.e., matching the treatment intensity to the prisoner's risk level), need (i.e., assessing and targeting the prisoner's criminogenic needs) and responsivity (i.e., aligning the treatment to the prisoner's personal needs) principle (Andrews and Bonta 2010). This last principle seems to be especially relevant for the current study. The responsivity principle states that although there are more general cognitive social learning strategies that can be applied to all types of prisoners, it is also important to tailor the treatment to the unique characteristics of the offender (e.g., personal strengths). Such a matching between prisoners' characteristics and the treatment may be facilitated by an autonomy-supportive communication of prison rules as this involves being attentive to the needs of prisoners, allowing prisoners to choose what fits best with their capabilities, interests, and goals, and being able to take the perspective of prisoners. Therefore, autonomy support can be considered as a specific style to operationalize this responsivity principle.

A second theoretical perspective that could be related to SDT's notion of autonomy support is the GLM, a strengths-based rehabilitation model that focuses on both risk/recidivism reduction as well as on meeting more general human needs and supporting offenders to live a 'good life' (Ward and Brown 2004). Respect for the prisoner's autonomy is

likely to be quintessential in order to serve this dual goal. Although we are not aware of any empirical studies that have drawn explicit links between SDT and RNR or GLM perspectives, attempts to do so in future research would likely be of benefit to all of these theories.

Finally, the current findings also fit well with motivational interviewing (MI; Miller and Rollnick 1991), which is another approach that aims to encourage change while at the same time respecting the individual's sense of autonomy. In line with SDT, MI assumes that individuals are active, growth-oriented organisms and that the best approach for motivating individuals is to activate and strengthen this inner growth-orientation, rather than imposing external demands on individuals (such as by threatening with punishments) (Vansteenkiste and Sheldon 2006). Previous research already found evidence for the positive effects of MI on prisoners' behavioral change, for example with respect to substance misuse (McMurran 2009). Given these positive effects of MI in this context, MI is expected to also foster rule adherence among prisoners by nurturing prisoners' strengths.

## Conclusion

Rules are eminently present within the prison context, and violations of these rules are also common (e.g., Sorensen and Cunningham 2010). Therefore, an examination of factors that could foster or hinder the personal endorsement of rules is highly relevant. Also, the internalization of prison rules has the potential to increase the safety within prison, which is beneficial to both the prisoners as well as the prison officers. The current study suggests that especially prisoners' perceptions of officers' autonomy-supportive communication is predictive of prisoners' identification with prison rules, which, in turn, is associated with a higher quality of life within the prison context. Additionally, we found evidence that prisoners' aggression and irritation related negatively to prisoners' perceptions of autonomy-supportive communication from prison officers and positively to perceived controlling communication from these officers.

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## Compliance with ethical standards

**Conflict of interest** The authors declare that they have no conflict of interest.

**Ethical approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. This article does not contain any studies with animals performed by any of the authors.

**Informed consent** Informed consent was obtained from all individual participants included in the study.

## References

- Aelterman, N., Vansteenkiste, M., & Haerens, L. (2018). Correlates of students' internalization and defiance of classroom rules: A self-determination theory perspective. *British Journal of Educational Psychology*. <https://doi.org/10.1111/bjep.12213>.
- Aelterman, N., Vansteenkiste, M., Soenens, B., & Haerens, L. (2016). A dimensional and person-centered perspective on controlled reasons for non-participation in physical education. *Psychology of Sport and Exercise*, 23, 142–154. <https://doi.org/10.1016/j.psychsport.2015.12.001>.
- Airdrie, J. N., Langley, K., Thapar, A., & van Goozen, S. N. M. (2018). Facial emotion recognition and eye gaze in attention-deficit/hyperactivity disorder with and without comorbid conduct disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, 57, 561–570. <https://doi.org/10.1016/j.jaac.2018.04.016>.
- Andrews, D. A., & Bonta, J. (2010). *The psychology of criminal conduct* (5th ed.). London: Routledge.
- Assor, A., Roth, G., & Deci, E. L. (2004). The emotional costs of parents' conditional regard: A self-determination theory analysis. *Journal of Personality*, 72, 47–88. <https://doi.org/10.1111/j.0022-3506.2004.00256.x>.
- Assor, A., Vansteenkiste, M., & Kaplan, A. (2009). Identified versus introjected approach and introjected avoidance motivations in school and in sports: The limited benefits of self-worth strivings. *Journal of Educational Psychology*, 101, 482–497. <https://doi.org/10.1037/a0014236>.
- Baudat, S., Zimmermann, G., Antonietti, J. P., & Van Petegem, S. (2017). The role of maternal communication style in adolescents' motivation to change alcohol use: A vignette-based study. *Drugs: Education, Prevention and Policy*, 24, 152–162. <https://doi.org/10.1080/09687637.2016.1192584>.
- Bjelland, M., Soenens, B., Bere, E., Kovács, É., Lien, N., Maes, L., et al. (2015). Associations between parental rules, style of communication and children's screen time. *BMC Public Health*, 15, 1002. <https://doi.org/10.1186/s12889-015-2337-6>.
- Buss, A. H., & Perry, M. (1992). The aggression questionnaire. *Personality Processes and Individual*, 63, 452–459.
- Damboeanu, C., & Nieuwebeerta, P. (2016). Importation and deprivation correlates of misconduct among Romanian inmates. *European Journal of Criminology*, 13, 332–351. <https://doi.org/10.1177/1477370815617191>.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11, 37–41. <https://doi.org/10.1207/S15327965PLI1104>.
- Elektronisch toezicht als alternatief voor een gevangenisstraf. (2016, June 8). Retrieved from <http://www.justitiehuisen.be/elektronisch-toezicht-als-alternatief-voor-eengevangenisstraf> [In Dutch]
- Goemaere, S., Vansteenkiste, M., Brenning, K., Beyers, W., Vermeulen, A., & Binsted, K., (in revision). Do astronauts benefit from autonomy? Investigating autonomy-supportive communication by mission support, astronauts' motivation and collaboration during HI-SEAS 1. *Manuscript under revision*.
- Grolnick, W. S., Deci, E. L., & Ryan, R. M. (1997). Internalization within the family: The self-determination theory perspective. In J. E. Grusec & L. Kuczynski (Eds.), *Parenting and children's internalization of values: A handbook of contemporary theory* (pp. 78–99). London: Wiley.
- Grusec, J. E., & Goodnow, J. J. (1994). Impact of parental discipline methods on the child's internalization of values: A reconceptualization of current points of view. *Developmental Psychology*, 30, 4–19. <https://doi.org/10.1037/0012-1649.30.1.4>.
- Haerens, L., Aelterman, N., Vansteenkiste, M., Soenens, B., & Van Petegem, S. (2015). Do perceived autonomy-supportive and controlling teaching relate to physical education students' motivational experiences through unique pathways? Distinguishing between the bright and the dark side of motivation. *Psychology of Sport and Exercise*, 16, 26–36. <https://doi.org/10.1016/j.psychsport.2014.08.013>.
- Haerens, L., Vansteenkiste, M., De Meester, A., Delrue, J., Tallir, I., Vande Broek, G., et al. (2018). Different combinations of perceived autonomy support and control: Identifying the most optimal motivating style. *Physical Education and Sport Pedagogy*, 23, 16–36. <https://doi.org/10.1080/17408989.2017.1346070>.
- Hornsveld, R. H., Muris, P., Kraaimaat, F. W., & Meesters, C. (2009). Psychometric properties of the aggression questionnaire in Dutch violent forensic psychiatric patients and secondary vocational students. *Assessment*, 16, 181–192. <https://doi.org/10.1177/1073191108325894>.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6, 1–55. <https://doi.org/10.1080/10705519909540118>.
- Hubbard, J. A., Dodge, K. A., Cillessen, A. H. N., Coie, J. D., & Schwartz, D. (2001). The dyadic nature of social information processing in boys' reactive and proactive aggression. *Journal of Personality and Social Psychology*, 80, 268–280. <https://doi.org/10.1037/0022-3514.80.2.268>.
- Jang, H., Kim, E. J., & Reeve, J. (2016). Why students become more engaged or more disengaged during the semester: A self-determination theory dual-process model. *Learning and Instruction*, 43, 27–38. <https://doi.org/10.1016/j.learninstruc.2016.01.002>.
- Jang, H., Reeve, J., & Deci, E. L. (2010). Engaging students in learning activities: It is not autonomy support or structure but autonomy support and structure. *Journal of Educational Psychology*, 102, 588–600. <https://doi.org/10.1037/a0019682>.
- Joussemet, M., Vitaro, F., Barker, E. D., Côté, S., Nagin, D. S., Zoccolillo, M., et al. (2008). Controlling parenting and physical aggression during elementary school. *Child Development*, 79, 411–425. <https://doi.org/10.1111/j.1467-8624.2007.01133.x>.
- Kline, R. B. (2005). *Principles and practice of structural equation modeling*. New York: The Guilford Press.
- Koestner, R., Ryan, R. M., Bernieri, F., & Holt, K. (1984). Setting limits on children's behavior: The differential effects of controlling vs. informational styles on intrinsic motivation and creativity. *Journal of Personality*, 52, 233–248. <https://doi.org/10.1111/j.1467-6494.1984.tb00879.x>.
- Kokkevi, A., Hartgers, C., Blanken, P., Fahner, E. M., Tempesta, E., & Uchtenhagen, A. (1993). *European version of the Addiction Severity Index* (5th ed.). Athens: Athens University Medical School.
- Laurin, J. C., & Joussemet, M. (2017). Parental autonomy-supportive practices and toddlers' rule internalization: A prospective observational study. *Motivation and Emotion*, 41, 562–575. <https://doi.org/10.1007/s11031-017-9627-5>.

- Liebling, A. (2011). Distinctions and distinctiveness in the work of prison officers: Legitimacy and authority revisited. *European Journal of Criminology*, 8, 484–499. <https://doi.org/10.1177/1477370811413807>.
- Liebling, A., Price, D., & Shefer, G. (2011). *The prison officer* (2nd ed.). Cullompton, Devon: Willan Publishing.
- Lim, B. S., How, Y. M., Tan, S. H., Wang, C. K. J., & Kamarova, S. (2016). Adolescents' self-determination profiles in physical education: Introjection and its implications. *International Sports Studies*, 38, 4–20. <https://doi.org/10.30819/iss.38-2.02>.
- McLellan, A. T., Luborsky, L., O'Brien, C. P., & Woody, G. E. (1980). An improved evaluation instrument for substance abuse patients: The Addiction Severity Index. *Journal of Nervous and Mental Disorders*, 168, 26–33.
- McMurrin, M. (2009). Motivational interviewing with offenders: A systematic review. *Legal and Criminological Psychology*, 14, 83–100. <https://doi.org/10.1348/135532508X278326>.
- Miller, W. R., & Rollnick, S. (1991). *Motivational interviewing: Preparing people for change*. New York: Guilford Press.
- Moran, C. M., Diefendorff, J. M., Kim, T. Y., & Liu, Z. Q. (2012). A profile approach to self-determination theory motivations at work. *Journal of Vocational Behavior*, 81, 354–363. <https://doi.org/10.1016/j.jvb.2012.09.002>.
- Mouratidis, A., Lens, W., & Vansteenkiste, M. (2010). How you provide corrective feedback makes a difference: The motivating role of communicating in an autonomy-supporting way. *Journal of Sport & Exercise Psychology*, 32, 619–637. <https://doi.org/10.1123/jsep.32.5.619>.
- Muthén L. K., & Muthén B. O. (1998–2012). *Mplus user's guide* (7th ed.). Los Angeles, CA: Muthén & Muthén.
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879–891. <https://doi.org/10.3758/BRM.40.3.879>.
- Reisig, M. D., & Mesko, G. (2009). Procedural justice, legitimacy, and prisoner misconduct. *Psychology, Crime & Law*, 15, 41–59. <https://doi.org/10.1080/10683160802089768>.
- Roth, G., Kanat-Maymon, Y., & Bibi, U. (2011). Prevention of school bullying: The important role of autonomy-supportive teaching and internalization of pro-social values. *British Journal of Educational Psychology*, 81, 654–666. <https://doi.org/10.1348/2044-8279.002003>.
- Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology*, 57, 749–761. <https://doi.org/10.1037/0022-3514.57.5.749>.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68–78. <https://doi.org/10.1037/110003-066X.55.1.68>.
- Ryan, R. M., & Deci, E. L. (2017). *Self-determination theory: Basic psychological needs in motivation, development, and wellness*. New York: Guilford Press.
- Ryan, R. M., Lynch, M. F., Vansteenkiste, M., & Deci, E. L. (2011). Motivation and autonomy in counseling, psychotherapy, and behavior change: A look at theory and practice. *Counseling Psychologist*, 39, 193–260. <https://doi.org/10.1177/0011000009359313>.
- Savard, A., Joussemet, M., Pelletier, J. E., & Mageau, G. A. (2013). The benefits of autonomy support for adolescents with severe emotional and behavioral problems. *Motivation and Emotion*, 37, 688–700. <https://doi.org/10.1007/s11031-013-9351-8>.
- Schmidt, S., Mühlan, H., & Power, M. (2006). The EUROHIS-QOL 8-item index: Psychometric results of a cross-cultural field study. *European Journal of Public Health*, 16, 420–428. <https://doi.org/10.1093/eurpub/ckl155>.
- Sierens, E., Vansteenkiste, M., Goossens, L., Soenens, B., & Dochy, F. (2009). The synergistic relationship of perceived autonomy support and structure in the prediction of self-regulated learning. *British Journal of Educational Psychology*, 79, 57–68. <https://doi.org/10.1348/000709908X304398>.
- Soenens, B., & Vansteenkiste, M. (2010). A theoretical upgrade of the concept of parental psychological control: Proposing new insights on the basis of self-determination theory. *Developmental Review*, 30, 74–99. <https://doi.org/10.1016/j.dr.2009.11.001>.
- Soenens, B., Vansteenkiste, M., & Niemiec, C. P. (2009). Should parental prohibition of adolescents' peer relationships be prohibited? *Personal Relationships*, 16, 507–530. <https://doi.org/10.1111/j.1475-6811.2009.01237.x>.
- Sorensen, J., & Cunningham, M. D. (2010). Conviction offense and prison violence: A comparative study of murderers and other offenders. *Crime & Delinquency*, 56, 103–125. <https://doi.org/10.1177/0011128707307175>.
- Steiner, B., & Wooldredge, J. (2015). Individual and environmental sources of work stress among prison officers. *Criminal Justice and Behavior*, 42, 800–818. <https://doi.org/10.1177/0093854814564463>.
- Van der Kaap-Deeder, J., Audenaert, E., Vandeveldel, S., Soenens, B., Van Mastrigt, S., Mabbe, E., et al. (2017). Choosing when choices are limited: The role of perceived afforded choice and autonomy in prisoners' well-being. *Law and Human Behavior*, 41, 567–578. <https://doi.org/10.1037/lhb0000259>.
- Van der Kaap-Deeder, J., Wouters, S., Verschueren, K., Briens, V., Deeren, B., & Vansteenkiste, M. (2016). The pursuit of self-esteem and its motivational implications. *Psychologica Belgica*, 56, 143–168. <https://doi.org/10.5334/pb.277>.
- Van der Laan, A., & Eichelsheim, V. (2013). Juvenile adaptation to imprisonment: Feelings of safety, autonomy and well-being, and behaviour in prison. *European Journal of Criminology*, 10, 424–443. <https://doi.org/10.1177/1477370812473530>.
- Van Malderen, S., Pauwels, L., Walthoff-Borm, C., Glibert, P., & Todts, S. (2011). *Druggebruik in Belgische gevangenis: Monitoring van gezondheidsrisico's 2010. Eindrapport*. Brussel: Federale overheidsdienst Justitie.
- van Mastrigt, S. (2015). Self-determination in prison: A new framework for thinking about penal practice and Scandinavian exceptionalism? In A. Storgaard (Ed.), *Research Seminar Report 57. Scandinavian Research Council for Criminology: Hvad er lov-hvad bør bliver lov? Kriminalisering og regulering i de nordiske velfærdsamfund* (pp. 117–131). Aarhus: Scandinavian Research Council for Criminology.
- Van Petegem, S., Soenens, B., Vansteenkiste, M., & Beyers, W. (2015). Rebels with a cause? Adolescent defiance from the perspective of reactance theory and self-determination theory. *Child Development*, 86, 903–918. <https://doi.org/10.1111/cdev.12355>.
- Van Petegem, S., Vansteenkiste, M., Soenens, B., Zimmermann, G., Antonietti, J.-P., Baudat, S., et al. (2017). When do adolescents accept or defy maternal prohibitions? The role of social domain and communication style. *Journal of Youth and Adolescence*, 46, 1022–1037.
- Vandeveldel, S., Soye, V., Vander Beken, T., De Smet, S., Boers, A., & Broekaert, E. (2011). Mentally ill offenders in prison: The Belgian case. *International Journal of Law and Psychiatry*, 34, 71–78. <https://doi.org/10.1016/j.ijlp.2010.11.011>.
- Vansteenkiste, M., Aelterman, N., De Muynck, G.-J., Haerens, L., Patall, E., & Reeve, J. (2018). Fostering personal meaning and self-relevance: A self-determination theory perspective on internalization. *Journal of Experimental Education*, 86, 30–49. <https://doi.org/10.1080/00220973.2017.1381067>.
- Vansteenkiste, M., Niemiec, C. P., & Soenens, B. (2010). The development of the five mini-theories of self-determination theory: An historical overview, emerging trends, and future directions. In T.

- C. Urdan & S. A. Karabenick (Eds.), *Advances in motivation and achievement*, v. 16A—*The decade ahead: Theoretical perspectives on motivation and achievement* (pp. 105–165). London: Emerald Group Publishing Limited.
- Vansteenkiste, M., & Ryan, R. M. (2013). On psychological growth and vulnerability: Basic psychological need satisfaction and need frustration as a unifying principle. *Journal of Psychotherapy Integration*, 23, 263–280. <https://doi.org/10.1037/a0032359>.
- Vansteenkiste, M., & Sheldon, K. M. (2006). There's nothing more practical than a good theory: Integrating motivational interviewing and self-determination theory. *British Journal of Clinical Psychology*, 45, 63–82. <https://doi.org/10.1348/014466505X34192>.
- Vansteenkiste, M., Sierens, E., Soenens, B., Goossens, L., Dochy, F., Aelterman, N., et al. (2012). Identifying configurations of perceived teacher autonomy support and structure: Associations with self-regulated learning, motivation and problem behavior. *Learning and Instruction*, 22, 431–439. <https://doi.org/10.1016/j.learninstruc.2012.04.002>.
- Vansteenkiste, M., & Soenens, B. (2015). *Vitamines voor groei: Ontwikkeling voeden vanuit de zelf-determinatie theorie*. Gent, België: Acco.
- Vansteenkiste, M., Soenens, B., Van Petegem, S., & Duriez, B. (2014). Longitudinal associations between adolescent perceived degree and style of parental prohibition and internalization and defiance. *Developmental Psychology*, 50, 229–236. <https://doi.org/10.1037/a0032972>.
- Ward, T., & Brown, M. (2004). The good lives model and conceptual issues in offender rehabilitation. *Psychology Crime & Law*, 10, 243–257. <https://doi.org/10.1080/10683160410001662744>.
- Ward, T., & Stewart, C. A. (2003). The treatment of sex offenders: Risk management and good lives. *Professional Psychology: Research and Practice*, 34, 353–360. <https://doi.org/10.1037/0735-7028.34.4.353>.

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