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Do rewards support or thwart autonomy in prison? A survey study into the relationships between rewards, autonomy and self-governance ability

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Abstract

Western prison managements increasingly combine disciplinary and responsibilising techniques to promote behaviour change in incarcerated individuals. Reward systems in prison (RSPs) are clear examples of this. In RSPs, external rewards are provided contingent on compliance with behavioural demands. This paper explores whether (a) rewards are associated with privilege level; (b) rewards are experienced as autonomy-supportive or autonomy-frustrating and (c) to what extent these relationships depend on self-governance ability. These questions are answered using self-report survey data from the Life in Custody study ($N = 1011$), collected in nine Dutch prisons. Results indicate that rewards are inconsistently allocated. However, individuals who reported more external rewards also reported significantly more perceived autonomy. Finally, greater self-governance ability was significantly associated with less autonomy frustration when individuals reported more rewards. Multiple recommendations for policy and practice are articulated. Future research should explore (structural and personal) conditions under which external rewards can support autonomy-supportive prisons.

Keywords

incentive scheme, privileges, responsibility, tightness, post-disciplinary prison

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Even though Western prison policies have arguably become more humane over recent decades, they still heavily restrict the autonomy of incarcerated individuals, both physically and psychologically (Crewe et al., 2023). Apart from being physically excluded from society, prison policies largely determine daily routines, such as what and when to eat, shower and receive visits. Such autonomy restrictions are generally experienced as psychologically invasive (e.g. Crewe, 2011a; Shammas, 2014). Over recent decades, rewarding compliance has also become an integral part of many Western prison policies (Elbers et al., 2022a). Reward systems in prisons (RSPs) affect how autonomy is perceived by incarcerated individuals, as they determine to what extent incarcerated individuals can act on their own initiative. These systems appear to fit well with contemporary prison management strategies, which aim to combine disciplinary and responsibilising behaviour management techniques (Bosworth, 2007; Chantraine, 2009; Hannah-Moffat, 2000). Responsibilisation is a managerial strategy that increasingly transfers responsibilities for state objectives to non-state actors such as (incarcerated) citizens (Garland, 1996). Incarcerated individuals are expected to adopt state objectives as personal goals and actively work towards them (Chantraine, 2009). Although some prison scholars describe the enabling and self-rehabilitating potential of RSPs (Gendreau et al., 2014), others describe RSPs as the 'penal archetype' of responsibilisation (Khan, 2022: 108) which instrumentalises personal autonomy (Chantraine, 2009), creates duties instead of rights (e.g. Noorda, 2024) and hollows out the 'volitional component' of personal change (McKendry, 2006: 489). These opposing descriptions of RSPs' relationship to autonomy raise the question of how autonomy in RSPs is in fact experienced by incarcerated individuals. Does rewarding their compliance support or frustrate their autonomy?

In RSPs – also known as incentive schemes – external rewards are systematically provided contingent on compliance with behavioural demands, such as following prison rules and actively working on rehabilitation (Elbers et al., 2022a). The best-known and most well-studied RSP perhaps is the Incentives and Earned Privileges (IEP) scheme in England and Wales (Liebling et al., 1997). The IEP scheme has four privilege levels through which individuals can progress by participating in sentence planning, work assignments and building prosocial relationships with staff and other incarcerated individuals, among other behavioural demands. Each level is associated with additional privileges. Non-compliance results in a level demotion. Many other Western nations currently also use some type of RSP, such as Scotland, Ireland, Romania, the United States and the Netherlands (see Elbers et al., 2022a). These RSPs differ in multiple respects, such as when they were introduced, the number of privilege levels they apply, the specific behavioural demands, the time between displaying behaviour and receiving rewards and whether the target group (e.g. entire prison population versus individuals in specific regimes or units) (Elbers et al., 2022a). They also differ regarding the type and number of privileges used. An example of this is greater opportunities to receive visits in prisons in Scotland compared to England and Wales, as Scottish prison policy safeguards a minimum number of prison visits regardless of (non-)compliance (McCarthy and Adams, 2017).

The relationship between rewarding compliance in RSPs and autonomy perceptions is paradoxical. In theory, making self-determined choices can support autonomy perceptions (Ryan and Deci, 2017). On the other hand, earning external rewards by behaving in

prescribed ways can be perceived as moralistic, paternalistic and psychologically invasive (Crewe, 2009, 2011a; Crewe and Ievins, 2021), frustrating autonomy perceptions (Ryan and Deci, 2017). For instance, as Noorda (2024) pointed out, participation in prison labour is presented to incarcerated individuals in an RSP as a ‘voluntary’ choice, even though not participating in prison labour results in denied privileges. Having privileges denied can be intense, as they often include activities that support basic psychological needs, such as prison visits (McCarthy and Adams, 2017). The question thus arises as to how ‘voluntary’ choices to (not) comply with prison rules are experienced when RSPs simultaneously aim to indirectly steer behaviour. Despite a recent revival in research on prison incentive schemes (e.g. Butler et al., 2024; Elbers et al., 2022a), the impact of RSPs on behavioural and psychological outcomes is largely unknown. This is remarkable, as rewarding good behaviour in prison is advocated by prison scholars (e.g. Gendreau and Listwan, 2018; Toch, 1988), recommended practice (United Nations, 2016) and applied worldwide (e.g. Elbers et al., 2022a). It is worthwhile to better understand the impact of RSPs on autonomy perceptions because autonomy perceptions are related to intrinsic motivation for rehabilitation (Bourgon and Bonta, 2014; Ward and Maruna, 2007) and a positive prison climate (Van Tiem et al., 2025).

Importantly, however, the impact of RSPs on autonomy perceptions may not be universal. For instance, the extent to which external rewards can contribute to autonomy perceptions could depend on incarcerated individuals’ self-governance ability. Prison populations worldwide are characterised by addiction, mental health problems and intellectual disabilities, which impair cognitive, socio-practical and executive abilities (Fazel et al., 2016; García-Largo et al., 2020). This could affect how autonomy is experienced.

This paper expands on the current literature by reporting on an empirical study that assesses the relationships between external rewards, autonomy perceptions and self-governance ability of incarcerated individuals. Next, we discuss the theoretical and empirical literature on each of these relationships and describe the study context.

External rewards and autonomy

RSPs are theoretically rooted in operant conditioning principles, which assume that rewards shape behaviour through activating neural networks related to pain and pleasure (Elbers, 2024). These mechanistic assumptions are atheoretical and underplay cognition (Gendreau and Listwan, 2018). We therefore apply Self-determination theory (SDT), which expands on operant conditioning principles with psychodynamic theory, existential theory and cognitive-developmental theory (Ryan and Deci, 2017). The SDT is especially apt for our purpose as it claims autonomy is key to understanding behavioural regulation and aims to explain ‘how autonomy develops, and how it can be either diminished or facilitated by specific biological and social conditions’ (Ryan and Deci, 2006: 1562).

The SDT posits that external controls (e.g. punishments and rewards determined by others) can frustrate autonomy perceptions (Ryan and Deci, 2017). This theory conceptualises autonomy as a basic psychosocial need and can be experienced when people ‘perceive their behaviour to emanate from the self and behave in ways that are congruent with their abiding interests, values, and beliefs’ (Niemic et al., 2010: 176). Autonomy is

further divided into autonomy satisfaction and autonomy frustration. Autonomy *satisfaction* involves perceived voluntary and self-chosen behaviour. It is promoted by (social) contexts which offer opportunities to make independent and meaningful choices, explain the goals and values of those choices and respect individual choices (Niemic et al., 2010; Vansteenkiste and Ryan, 2013). Autonomy *frustration* is experienced when autonomy satisfaction is thwarted, such as by external rewards that create pressure towards complying with behavioural demands which are incongruent with interests, values, and/or beliefs (Niemic et al., 2010). External controls can sometimes also undermine (pre-existing) intrinsic motivation to act (Ryan and Deci, 2000).

Several empirical studies suggest that RSPs can contribute to a (relative) increase in autonomy in a physical sense, while often also imposing psychological control, partly due to fear of having privileges revoked. An interview study on a pilot of a Dutch RSP (Farahi and Van de Rijt, 2016) and a more recent survey study (Driessen et al., 2025) revealed that some participants associated their privileges (e.g. prepare a meal, increased unsupervised mobility) with greater autonomy compared to closed regimes – even though these privileges were conditional on compliance. Participants in the IEP scheme in prisons in England and Wales similarly experienced a greater degree of choice and autonomy as they progressed through the system and gained more privileges (Crewe, 2009, 2011a). For them, this form of external control at least partially supported their autonomy perceptions (Bunce, 2020; Crewe and Ievins, 2021). Other participants, on the other hand, mainly experienced the IEP scheme as a straitjacket, illustrated by constant monitoring of and normative judgements about their choices (*pain of self-government*; Crewe, 2011a; also see UK Prison Reform Trust, 2019). According to Liebling et al. (1997), such differential experiences of control and subsequent non-compliance might be rooted in baseline locus of control differences.

Recent findings from studies on transfers from closed to open prison regimes (Shammas, 2014; Talay and Pali, 2020), parolees on licence (Harris et al., 2020; Reiter et al., 2018; Rennie and Crewe, 2023) and incarcerated individuals being (unconditionally) granted greater privileges (Van der Kaap-Deeder et al., 2017) echo the outcomes of RSP studies. Their findings also indicate that controlling but responsibilising individuals can be experienced as autonomy-supportive as well as autonomy-frustrating.

Self-governance ability, rewards and autonomy

Self-governance ability (SGA) could explain how external rewards differentially affect autonomy perceptions. SGA refers to conceptual, socio-practical and executive skills that enable setting and pursuing goals. Whether individuals experience external rewards as autonomy-supportive or autonomy-frustrating depends on how they appraise such rewards (Frielink et al., 2018). SGA differences could affect this appraisal. In SDT, conceptual, socio-practical and executive skills are prerequisites for autonomous functioning (Ryan and Deci, 2006). According to the related Causal agency theory (CAT) (Shogren et al., 2017; Wehmeyer, 2004), impairments in SGA are associated with difficulties in recognising and pursuing personal goals and values, due to impaired self-reflection skills, goal-directedness and other skills (Kaal et al., 2011; Shogren et al., 2017). These difficulties potentially blur perceived differences between personal and

imposed goals and could explain why external rewards are not being experienced as autonomy-frustrating (Koestner and Levine, 2023; Sheldon and Schöler, 2011; Wehmeyer and Schwartz, 1998).

Moreover, a history of sustained autonomy restriction (e.g. family, special school, care) could also impact how external rewards are appraised (Sheldon and Schöler, 2011). For some individuals, such a history could increase their psychological reactance to external rewards in prison (Van Assche et al., 2018). For others, these external rewards are congruent with their previously developed external locus of control and external causality orientation (Wehmeyer and Schwartz, 1998).¹ Consequently, external control can be experienced as less psychologically invasive.

Finally, when rewards cannot be fully utilised due to inadequate SGA, they are unlikely to support autonomy perceptions (Wehmeyer, 2004). Accordingly, among individuals with low SGA, we expect heterogeneity: when external controls are appraised as supportive and rewards can be utilised, autonomy satisfaction in RSPs should be higher and frustration lower; when controls are appraised as restrictive, or rewards are unusable, the opposite pattern should emerge.

These hypotheses are scarcely empirically assessed. Studies on SGA in correctional settings are mostly limited to prevalence studies on intellectual disability. Several qualitative studies, however, found that individuals with impaired SGA experienced difficulties with compliance in RSPs and, consequently, were less likely to progress to a higher privilege level and obtain (additional) rewards (Crewe, 2011a; Hutton, 2017). Such goal failure can frustrate autonomy perceptions (Ellis, 2011). Dutch pilot studies found that individuals with impaired SGA who managed to obtain rewards still struggled to utilise them (De Jong et al., 2015, 2016; Farahi and Van de Rijt, 2016). Utilising rewards can be hindered, for instance, by not understanding forms that need to be completed to receive extra visitors (Talbot, 2010) or limited engagement in rehabilitation courses, due to impaired self-reflection and self-monitoring. Several empirical studies in Dutch and English prisons found that individuals with impaired SGA complied with behavioural demands to the extent they were able to, yet failed to consider their personal goals and values in deciding whether to comply (Kaal et al., 2011; Talbot, 2010). This reflects a blurred line between perceptions of external and internal control, and thus of autonomy.

The Dutch reward system in prison

The Dutch RSP was introduced in 2014 in all 26 Dutch prisons. Of the 30,000 people flowing through Dutch prisons annually, only those housed on regular prison units (nearly half) participate in the Dutch RSP. The policy on the Dutch RSP is similar to the IEP scheme (Bosworth and Liebling, 1995; Elbers, 2024). Both systems aim to promote compliance, rehabilitation, self-governance and taking responsibility. Based on their assessments of behavioural compliance, a multidisciplinary team of prison staff in Dutch prisons decides whether individuals can progress from a Basic level (no rewards) to a Plus level (rewards). The policy dictates that 'good' behaviour should be the sole determinant of progression and that progression should directly result in receiving the privileges attached to the Plus level. Compliance in the Dutch RSP consists of active participation in sentence planning, including planning how to secure basic re-entry needs

(e.g. housing, job, bank account), implementing the sentence plan, cooperating in work assignments and the daily programme, refraining from alcohol or drug use and cooperating with drug testing (urine testing) and discussing behaviour. Non-compliance can result in revoking rewards or the continuation of denied access. Impermissible behaviour (e.g. a positive urine test, violence towards staff or peers), however, always results in losing rewards and further disciplinary action.

The Dutch RSP has been criticised by criminal law scholars for turning rights into earnables. For example, in the Dutch RSP, participation in work assignments has changed from being an enforceable right to a 'voluntary' behaviour (Noorda, 2024). However, acquiring rewards demands participation in prison labour. Managerial pressure to participate in prison labour is thus not direct and physically coercive but indirect and psychological, by attaching specific consequences to (non-)compliance (Noorda, 2024). This change might also reflect in how autonomous incarcerated individuals feel in choosing to (not) engage in prison labour.

Rewards include extra visits, more time out of cell, access to additional rehabilitation activities, educational courses and special work assignments (e.g. unit cleaner, coffee roaster, welder). Since 2021, going on leave, conditional release and moving to less secure units to prepare for release are also partially made dependent on RSP compliance (Elbers, 2024).

Current study

The aim of this study is to examine to what extent external rewards in prison can support autonomy, using survey data collected from 1011 individuals incarcerated in nine Dutch prisons. We will answer the following research questions:

1. To what extent are rewards associated with privilege level?
2. To what extent do rewards support or thwart autonomy perceptions of incarcerated individuals?
3. To what extent do these relationships depend on incarcerated individuals' self-governance ability?

Method

Data collection

The current study uses survey data from the Life in Custody (LIC) study, a large-scale research project by Leiden University and the Dutch Correctional Institutions Agency (DJI) that measures prison climate in the Netherlands (see Palmen et al., 2019, for more details on this project). Data used for this study were collected in eight Dutch prisons, which varied in size (small, medium and large), geographical location (six provinces) and in the number of regular prison units – as the Dutch RSP is formally only applied in prison regimes. Access to these prisons was well-arranged, as prison governors are well-acquainted with the LIC study. From March to July 2022, surveys were distributed and collected by a team of 10 research staff (mainly graduate students in criminology), under

the supervision of the first author. Research staff received extensive training in research ethics, obtaining informed consent, inviting incarcerated individuals to participate in research and handling difficult situations. The researchers approached each potential participant individually to explain the purpose, importance, independence, voluntariness and confidentiality of the study and answer questions. All approached individuals received a small token of appreciation (e.g. a candy bar), regardless of whether they chose to participate. Researchers mostly collected surveys the following day. Incarcerated individuals who had difficulty completing the survey were offered verbal assistance with filling out the survey.

Instrument and participants

Data were collected using the validated *Prison Climate Questionnaire* (PCQ) (Bosma et al., 2020). The standard PCQ was supplemented with a special module including items on rewards, autonomy (satisfaction and frustration) and self-governance ability. The wording of some items of the standard PCQ was simplified, and the survey was anonymised. The survey was available in Dutch and English. The Dutch version of the survey was piloted among eight incarcerated individuals, four of whom had a (mild) intellectual disability, according to prison officers on their unit. All participants reviewed the survey as clear and comprehensible.

A total of 3210 incarcerated individuals were residing in the selected facilities at the time of data collection, in a variety of regimes. Of these, 260 could not be invited to participate because of insufficient English or Dutch language proficiency, serious mental health problems or being held in segregation during data collection. A total of 2209 incarcerated individuals completed the survey (75% response rate). The sample used for this study consisted of 1011 individuals detained on regular prison regimes, whose RSP level (Basic or Plus) was known. The sample was all-male; 65% were born in the Netherlands, 60% had previously served time in prison, and 65% had served over 12 months of their current prison sentence. Their average age was 39 years ($Mdn. = 36$).

Variables

Privilege level. Privilege level was measured with one item ('Which level are you currently in?'). The response categories were 'Basic', 'Plus', 'Pre-trial detention', 'don't know' or 'not applicable'. These were transformed into a dichotomous variable (Basic level=0; Plus level=1). Other responses were coded as missing.

External rewards. Participants were asked to indicate to what extent they were able to choose if, when and how often they could engage in a list of seven plus-level activities (e.g. 'staying out of cell in-between activities'). The original response categories ranged from 1 (completely disagree) to 5 (completely agree) on a Likert-type scale. These categories were converted to 0 (completely disagree, disagree, neutral) and 1 (agree, completely agree) to simplify interpretation. A sum score (range 0–7) was calculated if more than half of the individual items were answered. The number of missing values on this sum variable was small, at 7%. Higher scores indicated more rewards.

Autonomy perceptions. Autonomy perceptions were measured using the validated autonomy scale of the *Basic Psychological Need Satisfaction and Need Frustration Scale* (BPNSNF) (Chen et al., 2015). We used a version that was previously used in a study on autonomy in prison, which was in Dutch and contained clear language (Van der Kaap-Deeder et al., 2017). Theory and prior psychometric analyses – also among individuals with intellectual disabilities (Frielink et al., 2018) – distinguished two dimensions of this scale: autonomy frustration and autonomy satisfaction (Chen et al., 2015; Ryan and Deci, 2017). For our research questions, it was relevant to use both dimensions since we expected that rewards could either support or frustrate autonomy. These two factors also emerged in our factor analysis, being equally reliable ($\alpha=0.82$) and reasonably correlated ($r=-0.49$). Autonomy satisfaction (e.g. ‘What I choose to do suits what I want to do myself’) and autonomy frustration (e.g. ‘I feel compelled to do many things, which I do not really want to do’) of participants were assessed using four items for each dimension. Response categories ranged from 1 (completely disagree) to 5 (completely agree) on a Likert-type scale. Higher scores indicated greater satisfaction or frustration. A mean score for each dimension was calculated if over half (three out of four) of the items were answered, resulting in less than 5% missing values on each dimension.

Self-governance ability. We used a modified version of the Leiden Self-Governance Ability Scale (LSGAS) (Elbers, 2024) to measure self-governance ability. The LSGAS is a newly constructed self-report instrument based on theories of cognition, intelligence and self-governance ability. Although our factor analysis highlighted two factors, we chose to include all items on one scale because of the comprehensibility of the results. A total score of 10 items was calculated that covered two relevant dimensions: conceptual functioning (three items, e.g. ‘I find short texts difficult to read and understand (such as street signs or advertising leaflets)’) and socio-practical functioning (seven items, e.g. ‘I can make appointments (such as at the doctor’s office or the town hall) without help from others’). All 10 items loaded at least 0.43 on the reliable total scale ($\alpha=0.79$), and the mean inter-item correlation was acceptable ($r=0.28$). Response categories ranged from 1 (completely disagree) to 5 (completely agree) on a Likert-type scale. A mean score was calculated if over half of the items were answered. To answer research question 3, two groups were created. Incarcerated individuals who scored in the lowest 40% (0.00–4.00) were coded as ‘Low SGA’, and those who scored in the upper 60% (4.00–5.00) as ‘High SGA’. This division was in line with an indication of the prevalence of mild intellectual disability in the Dutch prison (30%–45%; Den Bak et al., 2018; Kaal et al., 2011).

Control variables. We controlled for five background characteristics based on their theoretical and empirical relevance. Age in years was included as a continuous variable. Country of birth was distinguished between the Netherlands (1) and other countries (0). Time served in prison up until data collection was included as an ordinal variable with three categories: 0–6 months, between 6 and 12 months and longer than 12 months. Incarceration history indicated previously having served time in prison (1=yes, 0=no). Intrinsic motivation for compliance was included, as this can override autonomy frustration (Ryan and Deci, 2017). Intrinsic motivation was measured as a mean score of four

newly developed items (e.g. 'I try to behave according to the rules because desirable behaviour suits me'). A factor analysis indicated that these four items measured one construct and did so reliably ($\alpha=0.70$).

Analytical strategy

Analyses were conducted using SPSS 27.0. We conducted *t*-tests and χ^2 tests to identify differences between incarcerated individuals in Basic and Plus levels on the (in)dependent variables, followed by linear regression analyses to answer the research questions. The analyses were conducted for the total sample, and again separately for two groups (low versus high self-governance ability). We examined possible interaction effects (research question 3) using three additional regression analyses.

Results

Research question 1 examined whether individuals on a Plus level report more external rewards. Findings indicate that the vast majority (81%) of our sample reported being on a Plus level ($N=821$; see Table 1). Also, incarcerated individuals on a Basic level ($M=1.65$, $SD=1.50$) differed significantly from incarcerated individuals on a Plus level ($M=2.79$, $SD=1.55$) regarding the number of rewards they reported ($t(949)=-8.86$, $p<0.001$). Four out of seven rewards, however, were not reported significantly more often by individuals on a Plus level (see Table 2). Moreover, autonomy perceptions (both satisfaction and frustration) did not significantly differ between privilege levels. Multivariate analysis (see Table 3, column 'Total') did indicate that individuals on a Plus reported significantly more external rewards ($B=1.07$, $SE=0.15$, $p<0.001$).

External rewards and autonomy

Research question 2 addressed the relationship between external rewards and autonomy perceptions (satisfaction and frustration). Tables 4 and 5 (column 'Total') illustrate that incarcerated individuals who reported more rewards also reported significantly more autonomy satisfaction ($B=0.20$, $SE=0.02$, $p<0.001$) and less autonomy frustration ($B=-0.15$, $SE=0.02$, $p<0.001$). Considering the small effect sizes, this implies that incarcerated individuals experienced somewhat greater autonomy when they reported a greater number of rewards. Partially consistent with our expectations, this further suggests that external rewards do not necessarily have a frustrating effect on autonomy perceptions.

Self-governance ability, rewards and autonomy

Research question 3 focused on a possible interaction effect of self-governance ability (SGA) on the relationship between privilege level and external rewards (research question 1) and the relationship between external rewards and perceived autonomy (research question 2). Therefore, we compared two subgroups: incarcerated individuals low versus

Table 1. Descriptive statistics on the relationship between autonomy and privilege level.

	Total (<i>N</i> = 1011) %/M (SD)	Basic level (<i>n</i> = 190) %/M (SD)	Plus level (<i>n</i> = 821) %/M (SD)	Group differences Hedges <i>g</i> or χ^2	<i>n</i>
<i>(In)dependent variables</i>					
Rewards (0–7)	2.58 (1.60)	1.65 (1.50)	2.79 (1.55)	1.54***	951
Rewards (0–3)	1.16 (0.89)	0.80 (0.76)	1.24 (0.90)	0.87***	944
<i>Autonomy perceptions</i>					
Autonomy satisfaction (1–5)	2.99 (0.88)	3.00 (0.93)	2.99 (0.87)	0.88	961
Autonomy frustration (1–5)	3.10 (0.87)	3.10 (0.86)	3.09 (0.87)	0.87	977
Self-governance ability (1–5)	4.14 (0.58)	3.99 (0.64)	4.18 (0.56)	0.58***	949
Low self-governance ability (0–1)	37%	47%	35%	8.37**	351
<i>Background characteristics</i>					
Age (years)	39 (12.55)	32 (10.86)	41 (12.48)	12.20***	903
Intrinsic motivation (1–5)	3.75 (0.74)	3.53 (0.84)	3.80 (0.71)	1.54***	896
Born in the Netherlands (yes)	65%	68%	65%	0.70	933
<i>Time served</i>					
0–6 months	6%	12%	5%	13.16***	64
6–12 months	20%	21%	20%	0.06	201
12+ months	65%	60%	66%	2.45	656
Incarceration history (yes)	60%	74%	57%	17.30***	919

M: mean; SD: standard deviation.

*** $p \leq 0.001$; ** $p \leq 0.01$.

high on self-governance ability (see Tables 4 and 5, columns ‘Low SGA’ and ‘High SGA’). Being on a Plus level was associated with reporting more rewards in both the Low SGA subgroup ($B=0.91$, $SE=0.24$, $p<0.001$) and the High SGA subgroup ($B=1.15$, $SE=0.20$, $p<0.001$).

Moreover, multivariate analyses disclosed that the significant relationships between external rewards and autonomy perceptions in the total sample also emerged in both SGA subgroups (see Table 3, columns ‘Low SGA’ and ‘High SGA’). The direction of the effects of external rewards on autonomy satisfaction (+) and autonomy frustration (–) is similar for both groups. Both effects were, however, smaller in the Low SGA subgroup (satisfaction: $B=0.17$, $SE=0.03$, $p<0.001$; frustration: $B=-0.11$, $SE=0.03$, $p<0.001$) than in the High SGA subgroup (satisfaction: $B=0.20$, $SE=0.03$, $p<0.001$; frustration: $B=-0.18$, $SE=0.03$, $p<0.001$).

Table 2. Bivariate statistics of external rewards per item.

	Total (N= 1011)	Basic level (n= 190)	Plus level (n= 821)	Group differences (χ^2)	n
Rewards					
1: Autonomy during work assignments (0–1)	41%	13%	45%	39.10***	761
2: Free movement between activities (0–1)	63%	53%	66%	10.21***	946
3: Extra recreational time twice a week (0–1)	79%	31%	89%	288.36***	972
4: Receiving extra visitors (0–1)	32%	27%	34%	2.91	940
5: Participation in education (0–1)	23%	20%	24%	1.64	901
6: Participation in rehabilitation activities (0–1)	23%	20%	24%	1.14	888
7: Participation in re-entry activities (0–1)	15%	13%	15%	0.38	794

*** $p \leq 0.001$.

Interaction effects

In three linear regression analyses, we examined the significance of these subgroup differences. All but one interaction term was not significant (see Tables 3, 4 and 5, column ‘Total (interaction)’). In the first analysis, the number of external rewards was the dependent variable, the independent variable was privilege level and the interaction term was ‘privilege level $\times$ SGA’. The non-significant interaction term ($B = -0.04$, $SE = 0.18$, $p = 0.87$) indicates that the relationship between privilege level and external rewards did not depend on self-governance ability. In the second analysis, the dependent variable was autonomy satisfaction, the independent variable was external rewards and the interaction term was ‘external rewards $\times$ SGA’. This interaction term approached significance ($B = 0.06$, $SE = 0.03$, $p = 0.07$). The third analysis, with autonomy frustration as the dependent variable, external rewards as the independent variable and ‘external rewards $\times$ SGA’ as the interaction term, did indicate a small significant interaction effect ($B = -0.08$, $SE = 0.03$, $p = 0.008$). This means that individuals who reported more SGA also experienced significantly less autonomy frustration when they reported more rewards.

In summary, according to incarcerated individuals in our Dutch sample, external rewards were not exclusively tied to the Plus level; rewards contributed to their perceptions of autonomy satisfaction and mitigated autonomy frustration and the relationship between external rewards and autonomy frustration depended on reported self-governance ability.

Table 3. Linear regression results of the effect of privilege level on external rewards (0–7), including interaction terms.

Variables	Total		Total (interaction)		Low SGA		High SGA	
	B	SE	B	SE	B	SE	B	SE
Plus level (1 = Yes)	1.07***	0.15	1.23	0.97	0.91***	0.24	1.15***	0.20
Self-governance ability (1–5)	0.25*	0.10	0.32	0.43	–	–	–	–
Plus level × Self-governance ability	–	–	–0.04	0.23	–	–	–	–
Age (in years)	0.01	0.01	0.01	0.01	0.02*	0.01	–0.00	0.01
Time served								
0–6 months	0.16	0.26	0.16	0.26	–0.38	0.37	0.59	0.35
6–12 months	ref	ref	ref	ref	ref	ref	ref	ref
12+ months	0.32*	0.13	0.32*	0.13	–0.08	0.22	0.53**	0.17
Born in the Netherlands (yes)	–0.02	0.12	–0.02	0.12	0.14	0.18	–0.09	0.16
Incarceration history (1 = Yes)	–0.11	0.11	–0.11	0.11	–0.32	0.19	–0.05	0.08
Intrinsic motivation (1–5)	0.28***	0.07	0.28	0.08	0.30*	0.12	0.29**	0.01
(Constant)	–1.79***	0.53	–2.08	1.78	–0.85	0.61	–0.77	0.56
R ²	0.13		0.13		0.15		0.12	
n	763		763		266		497	

B: unstandardised coefficient, explaining how much the outcome variable changes for every one-unit increase in the predictor variable; SE: standard error, the margin of error reflecting the degree to which the results might fluctuate when run multiple times. In total, this integrated table contains the results of three separate regression analyses. Columns 'Total' and 'Total (interaction)' present the results of two consecutive models in one linear regression analysis. Columns 'Low Self-Governance Ability' and 'High Self-Governance Ability' present results of two separate linear regressions, conducted for both subgroups.

*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.05$.

Table 4. Linear regression results of the effect of external rewards on autonomy satisfaction, including interaction terms.

Variables	Total		Total (interaction)		Low SGA		High SGA	
	B	SE	B	SE	B	SE	B	SE
Rewards (0–7)	0.20***	0.02	–0.04	0.13	0.17***	0.03	0.20***	0.03
Self-governance ability (1–5)	–0.09	0.05	–0.22*	0.09	–	–	–	–
Rewards × Self-governance ability	–	–	0.06	0.03	–	–	–	–
Age (in years)	–0.13 ^a	0.10	–0.00	0.00	–0.16 ^a	0.16	–0.10 ^a	0.13
Time served								
0–6 months	0.26	0.14	0.24	0.14	0.03	0.19	0.42*	0.20
6–12 months	ref	ref	ref	ref	ref	ref	ref	ref
12+ months	0.11	0.08	0.10	0.07	0.07	0.11	0.12	0.10
Born in the Netherlands (yes)	–0.01	0.07	–0.00	0.07	0.07	0.09	–0.06	0.09
Incarceration history (I = Yes)	0.19**	0.06	0.19**	0.06	0.14	0.10	0.21**	0.08
Intrinsic motivation (1–5)	0.13**	0.04	0.13**	0.04	0.15*	0.06	0.12*	0.05
(Constant)	2.61***	0.41	2.81***	0.41	2.47***	0.56	2.13***	0.51
R ²	0.16		0.16		0.15		0.17	
n	752		752		259		493	

B: unstandardised coefficient; SE: standard error.

^aLog of Age was used. In total, this integrated table contains the results of three separate regression analyses. Columns ‘Total’ and ‘Total (interaction)’ present the results of two consecutive models in one linear regression analysis. Columns ‘Low Self-Governance Ability’ and ‘High Self-Governance Ability’ present results of two separate linear regressions, conducted for both subgroups.
*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.05$.

Table 5. Linear regression results of the effect of rewards on autonomy frustration, including interaction terms.

Variables	Total		Total (interaction)		Low SGA		High SGA	
	B	SE	B	SE	B	SE	B	SE
Rewards (0–7)	–0.15***	0.02	0.20	0.13	–0.11***	0.03	–0.18***	0.03
Self-governance ability (1–5)	0.09	0.06	0.29**	0.10	–	–	–	–
Rewards × Self-governance ability	–	–	–0.08**	0.03	–	–	–	–
Age (in yrs)	–0.01	0.00	–0.01**	0.00	0.00	0.00	–0.01*	0.00
Time served								
0–6 months	0.07	0.15	0.10	0.154	0.35	0.19	–0.13	0.21
6–12 months	ref	ref	ref	ref	ref	ref	ref	ref
12+ months	0.15*	0.08	0.16*	0.08	0.22*	0.11	0.12	0.10
Born in the Netherlands (yes)	–0.01	0.07	–0.02	0.07	0.03	0.10	–0.05	0.09
Incarceration history (1 = Yes)	–0.09	0.06	–0.10	0.06	–0.07	0.10	–0.13	0.08
Intrinsic motivation (1–5)	0.07	0.04	0.08	0.04	0.14*	0.07	0.03	0.06
(Constant)	3.02***	0.28	2.18***	0.42	2.68***	0.28	3.85***	0.28
R ²	0.08		0.09		0.07		0.10	
n	758		758		264		494	

In total, this integrated table contains the results of three separate regression analyses. Columns 'Total' and 'Total (interaction)' present the results of two consecutive models in one linear regression analysis. Columns 'Low Self-Governance Ability' and 'High Self-Governance Ability' present the results of two separate linear regressions, conducted for both subgroups.
B: unstandardised coefficient; SE: standard error.
*** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.05$.

Discussion

This study examined whether rewarding compliance in prison (e.g. access to more activities and greater freedom of movement) supports or thwarts autonomy perceptions of incarcerated individuals, and how self-governance ability relates to this. Western nations increasingly combine controlling and responsibilising behaviour management techniques (Bosworth, 2007; Chantraine, 2009; Hannah-Moffat, 2000), such as granting privileges contingent on compliance with behavioural demands. In theory, earning rewards can increase autonomy perceptions (Ryan and Deci, 2017), but they can also be experienced as psychological control (Crewe, 2011a). Moreover, the relationship between rewards and autonomy perceptions may depend on individuals' self-governance ability, which is often impaired in prison populations. Despite their widespread implementation, the applications and psychological impact of reward systems in prisons (RSPs) remain understudied. This paper therefore addresses three interrelated practical and conceptual research questions within the context of a Dutch RSP, using survey data ($N = 1011$).

The first research question was: *To what extent are rewards associated with privilege level?* Incarcerated individuals on a Plus level reported more rewards than those on a Basic level, but only regarding three out of seven rewards measured (autonomy during work assignments, free movement between activities, extra recreational time twice a week). From the perspective of policy theory, this is unexpected. Hence, reward allocation deviates from policy, according to the incarcerated individuals in our sample, as access to the Plus level does not equate to access to the privileges associated with that level. This finding echoes prior studies on RSPs, which reported arbitrary and inconsistent system application, producing uncertainty and unpredictability (Crewe, 2011b; Khan, 2022). These issues can promote an external locus of control, mitigate perceived system legitimacy and contribute to non-compliance (Crewe, 2011a; Liebling et al., 1997). Possible explanations for low reward prevalence across privilege levels are unfamiliarity with rewards, pervasive staff shortages and lack of adequate staff training (Elbers, 2024). However, as revoking rewards in the Dutch RSP is rare (Elbers, 2024), participants in our sample might have experienced rewards granted to them – and the autonomy they represent – as less conditional.

The second research question was: *To what extent do external rewards support or thwart autonomy perceptions of incarcerated individuals?* We found that reporting a greater number of rewards was related to higher autonomy satisfaction and lower autonomy frustration, on Basic and Plus levels. This aligns well with the programme logic of the Dutch RSP (Elbers, 2024), prior research on the IEP scheme (Crewe, 2011a) and Dutch pilot studies (De Jong et al., 2015, 2016; Farahi and Van de Rijt, 2016). This finding might be explained by unmeasured variables, such as high pre-study intrinsic motivation levels and/or a personal tendency to be guided by internal or external controls (causality orientation). For instance, a tendency to be guided by external controls might cause external rewards to be experienced as less threatening to personal autonomy (Deci and Ryan, 1985).

The third research question was: *To what extent do these relationships depend on incarcerated individuals' self-governance ability?* This question concerned possible

interaction effects of self-governance ability on the relationships tested in research questions 1 and 2. While theory poses that external rewards could have both positive and negative effects on autonomy perceptions when self-governance ability is lower, empirical tests of those hypotheses were absent. Our findings illustrate that incarcerated individuals with low and high self-governance ability all experienced greater autonomy when they reported more rewards. This suggests that all incarcerated individuals can utilise such rewards in a way that contributes to their need for autonomy. Although group means obscure individual differences, our findings suggest that, on average, individuals in our sample with low SGA did not experience external rewards as more autonomy-frustrating. Although this might be explained by their impairments blurring differences between sources of internal and external control (Koestner and Levine, 2023; Sheldon and Schöler, 2011; Wehmeyer and Schwartz, 1998), more (qualitative) research is necessary to adequately test this hypothesis. It is important to bear in mind, however, that individuals with impaired SGA are less likely to obtain rewards in the first place, which can exacerbate pre-existing inequalities (Crewe, 2011a; Elbers et al., 2026; Hutton, 2017). It was also found that individuals with higher self-governance ability experienced significantly less autonomy frustration when reporting more rewards, compared to those reporting lower self-governance ability. A possible explanation for this effect is that some rewards require more skills than others to utilise them, such as greater responsibilities in special work assignments.

Limitations and recommendations

This exploratory study is not without limitations. First, the survey used in the current study measured 7 of 11 external rewards that can be used in the Dutch RSP, as the survey did not capture all external rewards. The reported effects may, therefore, be either underestimated or overestimated. Second, survey data were collected immediately after all restrictions on autonomy due to COVID-19 in Dutch prisons were lifted in March 2022. In the aftermath of the pandemic, multiple rewards might still have been cancelled at the time of data collection. This may partly explain why the reported prevalence of specific rewards was relatively low on both privilege levels (see Table 2). However, the fact that autonomy scores were nearly identical to pre-COVID-19 scores in Dutch prisons contradicts that explanation (De Jong et al., 2019; Elbers et al., 2022b). Finally, pre-existing individual differences (e.g. locus of control, causality orientations) were not captured by our cross-sectional data, even though they might explain the observed effects of rewards on the satisfaction and frustration of the need for autonomy. Consequently, a selection effect cannot be ruled out. To overcome these potential issues, future studies could adopt a longitudinal design, using pre- and post-tests that include potential predictors of autonomy perceptions, such as (domain-specific) perceived locus of control (Rotter, 1966) and (general) locus of causality (Deci and Ryan, 1985; Wehmeyer, 2004).

An obvious but challenging policy recommendation is to bridge the gap between policy and practice. Although our self-report data only reflect incarcerated individuals' *perceptions* of such a gap, prior studies (also) using administrative data have also repeatedly found that prison staff deviate from policy (Haggerty and Bucerius, 2021; Liebling et al., 1997). As such deviations could frustrate autonomy and result in non-compliance,

it is recommended to ensure that behavioural criteria are unambiguously formulated and that (sufficient) staff are adequately trained and supervised (Gendreau et al., 2014). Moreover, external rewards should be used in the context of good staff-prisoner relationships (Gendreau et al., 2014). Rigid and top-down application of incentive schemes can contribute to formalising and bureaucratising these relationships (Elbers, 2024). Therefore, a balance should be found between predictability and flexibility, between equality and individualisation.

Furthermore, compliance and rehabilitation could be aided by autonomy-supportive prisons. When experienced as supportive instead of coercive, incarcerated individuals often welcome forms of external control (e.g. Bunce, 2020; Woodall et al., 2014) – even when their self-governance ability is impaired (Carey et al., 2022; Frielink et al., 2018). An ‘ideal’ institutional grip could thus support individual autonomy (Crewe and Ievins, 2021). The question is how this ideal can become real. Studies in the Netherlands and the United Kingdom indicate that rewarding compliance can be experienced as moralistic and psychologically invasive (Crewe, 2009, 2011a; Elbers, 2024; Khan, 2022; UK Prison Reform Trust, 2019). An autonomy-supportive communication style (explain rules, discuss motives to (not) comply, acknowledge difficulties) might mitigate such negative experiences (Van der Kaap-Deeder et al., 2019). It can contribute to understanding and internalising the goals and values of compliance (Ryan and Deci, 2017). This alignment will always be incomplete in correctional settings. For instance, the need for contact with loved ones is curtailed by security and practical reasons, limiting the number of visits. When institutional goals prevail, it is advised to maintain procedurally fair communication styles, as firm but fair treatment supports correctional behaviour management (Dowden and Andrews, 2004).

As individuals with impaired SGA are less likely to obtain rewards in the first place (Crewe, 2011a; Elbers et al., 2026; Hutton, 2017), future research should not be restricted to exploring structural conditions (e.g. staff-prisoner relationship quality, perceived procedural justice) and personal conditions (e.g. locus of control, causality orientations) in which external rewards can support autonomy in prison. It should also normatively and empirically address who ‘succeeds’ and who ‘fails’ in RSPs, due to how these systems are designed and applied. Empirically, it should be examined how tailoring design and application to specific responsivity factors, such as SGA, might reduce existing inequalities and increase RSP effectiveness for all incarcerated individuals. Examples include providing clear, prompt and predictable rewards; better identifying issues with self-governance; adjusting behavioural demands accordingly and offering appropriate support (Elbers, 2024). More generally, it could be assessed for whom RSPs can contribute to (substantive) compliance, and which alternatives might work better for other incarcerated individuals.

To conclude, this exploratory study provides unique insights into the application and psychological impact of incentive schemes. It revealed that external rewards can be autonomy-supportive (if they are granted), even more so for individuals able to self-govern their conduct. We hope these findings inspire the debate on how powers can be balanced and responsibilities distributed in a way that is responsive to the needs of incarcerated individuals, prison management and society.

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Note

1. Causality orientations are rather static tendencies towards either internal or external motivational sources, while a locus of control is domain-specific and dynamic (Ryan and Deci, 2017).

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