International e-Journal of Criminal Sciences

ISSN: 1988-7949 UPV/EHU Press www.ehu.eus/inecs

Prison Regime and Quality of Life as Predictors of Prisoners' Well-being in Serbia

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https://doi.org/10.1387/inecs.28396

Abstract

Given limited empirical research on how prison regimes and perceived quality of life shape prisoner well-being, particularly in Southeast Europe, this cross-sectional study examined these associations among male prisoners in Serbia. The convenience sample included 525 prisoners from the four largest prisons in Serbia. Data were collected using the *Measuring the Quality of Prison Life* (MQPL) survey and the WHOQOL-BREF. Hierarchical multiple regression analyses tested how four WHOQOL-BREF domains predicted five MQPL-based outcomes while controlling for prison regime (closed vs. semi-open). Prison regime significantly predicted all outcomes, with prisoners in semi-open regimes reporting more favourable scores. However, its effect weakened after quality-of-life variables were introduced. *Environmental Health* emerged as the strongest predictor, especially for *Personal Development* and the *Global score*. *Physical* and *Psychological Health* were most strongly associated with *Distress*, while *Social Relationships* negatively predicted most outcomes except *Distress*. These findings highlight the importance of environmental and psychosocial conditions in shaping prisoners' well-being. Less restrictive regimes may foster more positive prison experiences by supporting autonomy, personal development, and reduced distress, with potential benefits for rehabilitation and reintegration.

Key words: *prison regime, quality of life, well-being, prison climate, prison environment*

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Introduction

Prison environments are widely recognised as having profound effects on prisoners' well-being, physical and mental health, and overall quality of life (QOL) (Goomany & Dickinson, 2015; Van Ginneken, Palmen, Bosma, & Sentse, 2019). Understanding these experiences has therefore become a central concern in contemporary prison research, particularly in relation to institutional legitimacy, rehabilitation, and reintegration. Conditions within correctional facilities, including safety, access to healthcare, and opportunities for rehabilitation, influence not only prisoners' day-to-day experiences but also their prospects for successful reintegration after release (Auty & Liebling, 2020; Gonçalves, Endrass, Rossegger, & Dirkzwager, 2016; Van Ginneken & Palmen, 2023; Van Ginneken, Palmen, Bosma, Nieuwbeerta, & Berghuis, 2018).

Prison climate is a key framework for describing these conditions. It includes diverse social, emotional, organisational, and physical factors (Bosma, van Ginneken, Sentse, & Palmen, 2020; Liebling, Hulley, & Crewe, 2012; Ross, Diamond, Liebling, & Saylor, 2008). A positive prison climate is typically characterised by supportive staff, safety, fair treatment, access to healthcare, and attention to vulnerable prisoners. Empirical studies consistently demonstrate that such environments influence prisoners' health and well-being, their adaptation to imprisonment, relationships with staff, and engagement in institutional activities (Bosma et al., 2020; Ross, Liebling, & Tait, 2011). Beyond shaping everyday prison experiences, prison climate and QOL are increasingly discussed in relation to broader penal goals. Research suggests that environments characterised by fairness, autonomy, safety, and supportive relationships may foster more constructive institutional experiences and strengthen prisoners' motivation for change (Auty & Liebling, 2020; Barquín, Cano, & Calvo, 2019; Mastrobuoni & Terlizzese, 2022; Van Ginneken & Palmen, 2023). In contrast, highly restrictive environments associated with distress, poor QOL, and limited opportunities for personal development may undermine rehabilitative efforts and make post-release reintegration harder (Barquín et al., 2019).

One widely recognised approach for evaluating prison climate is the *Measuring the Quality of Prison Life* (MQPL) (Liebling et al., 2012), which assesses key aspects of prison life, including staff–prisoner relationships, security, fairness, and staff professionalism. Within this framework, well-being and opportunities for personal development are listed among central dimensions of prisoners' experiences (Liebling & Arnold, 2004, p. 134). At the same time, research suggests that understanding prison climate requires consideration of both environmental and individual factors (Bosma et al., 2020; Calles-Rubiales & Ibáñez Del Prado, 2020; Gullone, Jones, & Cummins, 2000; Molleman & Van Ginneken, 2015).

Within this broader research tradition, the prison regime represents a key institutional dimension of imprisonment, while prisoners' QOL reflects how these conditions are experienced at the individual level. Prison climate research provides an integrative framework linking institutional environments with prisoners' subjective experiences (Baharudin, Mohamad, & Karim, 2021; Fardin, 2020; Jordan, 2011; Van Ginneken et al., 2018, 2019). In general, environmental and spatial conditions mediate how regime quality, legitimacy, staff use of authority, and opportunities for development are experienced in everyday prison life (Abdel-Salam & Kilmer, 2023; Aon, Oberconz, & Brasholt, 2025; Engstrom & Van Ginneken, 2022; Paraušić Marinković, 2024). Examining these dimensions together may therefore offer a more comprehensive understanding of how prison environments influence prisoners' well-being.

To address gaps in the literature, this study explores how prison regimes and QOL predict well-being among Serbian male prisoners. Empirical evidence on the combined influence of regime type and self-perceived QOL remains limited, and most prison research remains concentrated in Western contexts (Van Ginneken et al., 2019), with relatively little evidence from Southeast Europe, including Serbia, where national penal climates may uniquely affect well-being.

Quality of Life as a Key Determinant of Well-being

As an indicator of well-being and health status, QOL is widely recognised across various contexts. The World Health Organisation Quality of Life (WHOQOL) framework defines it as "individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns", and assesses it across four domains: the physical (health, energy, mobility), psychological (emotional well-being, cognitive functioning), social (interpersonal relationships, social support), and environmental (safety, financial resources, access to services) (WHOQOL Group, 1998, p. 551). This framework conceptualises QOL as a multidimensional construct shaped by both individual experiences and environmental conditions.

These dimensions are particularly relevant in prisons. Incarcerated individuals' QOL is influenced by access to healthcare, institutional conditions, prison climate, and social relationships (Capon, McGowan, & Bowman, 2020; Gonçalves, Gonçalves, Martins, & Dirkzwager, 2014; Ross et al., 2011). Individual factors such as age, time spent in prison, and education level also affect QOL (Combalbert, Pennequin, Ferrand, Keita, & Geffray, 2019), as do physical health indicators, including pain, mobility, or lack of physical exercise (Obadiora, 2018). Research further shows that strong social support can mitigate the negative effects of imprisonment (Baharudin et al., 2021) while positive staff–prisoner relationships contribute to better prison climates and improved QOL (Bosma et al., 2020). The

physical environment, including architectural layout and unit age, also shapes staff–prisoner interactions and perceptions of well-being (Beijersbergen, Dirkzwager, Van Der Laan, & Nieuwbeerta, 2016). Overall, well-being in custodial settings reflects the interaction of psychological health, social relationships, environmental conditions, and the spatial organisation of prison life.

Prison Regimes and Their Influence on Well-being

Prison regimes differ across penal systems in terms of rules, routines, security levels, and the degree of freedom and programming they provide. Closed regimes have high-security measures, strict confinement, limited social interactions and minimal contact with the outside world. In contrast, semi-open and open regimes provide more autonomy. These options help facilitate rehabilitation and community reintegration (Barquín et al., 2019; Fardin, 2020; Kozhokaru, 2020; Kundu, Patnaik, Sahu, Sahoo, & Panigrahi, 2018; Mjåland, Laursen, Schliehe, & Larmour, 2023).

In Serbia, prisoners in semi-open settings report less distress, more autonomy, greater opportunities for personal development, and better well-being than those in closed facilities (Ilijić, Pavićević, & Milićević, 2024). These patterns align with findings from other penal systems. High-security regimes are often associated with distress, reduced autonomy, lower QOL, higher recidivism, and challenges in individualising punishments. Conversely, less restrictive prison environments, such as minimum-security or open regimes, are generally associated with higher levels of well-being, autonomy, engagement in meaningful activities, and more manageable pains of imprisonment (Fardin, 2020; Kozhokaru, 2020; Mastrobuoni & Terlizzese, 2022; Mjåland et al., 2023; Van Ginneken et al., 2018).

The Serbian Penal System: Legal and Institutional Context

The Serbian criminal justice system provides a range of custodial and non-custodial sanctions. The most severe penalty is life imprisonment, while fixed-term prison sentences range from 30 days to 20 years. The death penalty was fully abolished in 2002, with no executions carried out after 1992. In addition to imprisonment, courts may impose fines or community service, which involves unpaid socially useful work performed under supervision. Other alternative sanctions include house arrest for shorter custodial sentences. Serbian criminal law also provides cautionary measures, such as suspended sentences and judicial admonitions, intended for less serious offences. In recent years, custodial sanctions have accounted for approximately 40% of all criminal sanctions in Serbia, while non-custodial measures represent about 60%. Suspended sentences are the most frequently imposed sanction, accounting for around two-fifths of all convictions (Statistical Office of the Republic of Serbia, 2025). The prison system comprises

several categories of institutions with different security levels. Specifically, it includes 10 correctional facilities (including one for women), one juvenile correctional facility, and 15 district prisons that serve both custodial and remand functions. The system also includes a Special Prison Hospital and a residential correctional facility for juveniles.

Over the past two decades, Serbia has experienced a substantial increase in its prison population, with incarceration rates rising by approximately 70% between 2005 and 2024 (Aebi & Cocco, 2025). As of January 2024, Serbia had 11,701 prisoners, including pre-trial detainees, and a prison population rate of 177.1 per 100,000 inhabitants, considerably above the European average of 121.7. Shared accommodation remains common, with approximately three to four prisoners per cell on average. The system operates near full capacity (97.9%), meaning that minor fluctuations in admissions could quickly return the system to overcrowding (Aebi & Cocco, 2025). Overall prison density is moderate (around 98 prisoners per 100 available places), while the proportion of female prisoners remains relatively low (4.1%). Serbian prisons also operate with comparatively limited resources, including lower per-prisoner expenditure and relatively high prisoner-to-staff ratios (2.7:1), which may restrict access to programmes, medical care, and personal support. These structural characteristics are therefore important for understanding everyday prison conditions and prisoners' experiences of well-being and prison climate.

As in many European systems, prison regimes in Serbia aim to balance security requirements with rehabilitation and reintegration objectives. Prisoner placement is determined by three main criteria: security level (risk and supervision requirements), rehabilitation potential, and individual needs, including medical or psychological support, education, and vocational training (Law on the Execution of Criminal Sanctions, 2019). Open prisons are intended for low-risk prisoners and provide the highest level of autonomy, including weekend visits and temporary leave to support reintegration. Semi-open prisons offer similar privileges but with moderate restrictions, while closed prisons are reserved for high-risk prisoners or those who experience difficulties adapting to institutional life. The system also allows reclassification based on rehabilitation progress or disciplinary behaviour. These distinctions are important for research on prison climate and well-being, as regime organisation may influence prisoners' everyday experiences and the rehabilitative potential of custodial setting.

Current study

This study investigated how prison regimes (closed vs. semi-open) and self-perceived QOL influence well-being and development among male prisoners within the Serbian penal system. Specifically, we examined how four WHOQOL-BREF domains (*Physical Health*, *Psychological Health*, *Social Relationships*, and

Environment) predict five MQPL-based outcomes (*Personal Development*, *Personal Autonomy*, *Well-Being*, *Distress*, and *Global Well-Being and Development Score*) while controlling for prison regime. The main research question was: *To what extent do prison regimes and QOL explain differences in well-being and development-related aspects of the prison climate among male prisoners?* The findings could clarify the relative contributions of environmental, psychological, and social factors to prison experience, with implications for prison management and rehabilitation policies.

Method

Sample and procedure

Participants were recruited between May 2022 and January 2023 from four correctional facilities in Serbia: Sremska Mitrovica, Niš, Požarevac–Zabela, and Beograd using convenience sampling. An invitation to participate, including a brief description of the study and participation requirements, was displayed on prison notice boards for two weeks prior to data collection. Interested individuals applied through treatment service staff, who assisted with logistical organisation but were not involved in participant selection. Eligibility criteria included being legally sentenced to imprisonment, having served at least 30 days of the sentence, functional literacy in Serbian, and providing written informed consent. Individuals in disciplinary segregation or receiving acute medical or psychiatric care were not approached.

Participation was entirely voluntary. As participation relied on prisoners' self-selection following a public invitation, prison staff did not apply behavioural or other selection criteria when facilitating participation. Prisoners were informed that declining or withdrawing would have no consequences for their status, privileges, or treatment within the institution. No incentives were provided. Participants were informed about the study's aims and procedures, assured of anonymity, and reminded of their right to withdraw at any time. No personally identifiable information was collected.

Paper questionnaires were administered by the research team in the prison dining area during a single session. Researchers were present to assist with questions. After completion, participants sealed their questionnaires in envelopes and returned them directly to the researchers.

The final sample consisted of 525 participants (M_{age} = 39.99 years [*SD* = 10.18], range 20–73 years). At the time of data collection (2022), there were 7,324 sentenced prisoners in Serbia (Aebi & Cocco, 2024), meaning that the study sample represents 7.2% of the national sentenced prison population. According to official data from the Directorate for the Execution of Criminal Sanctions (official communication, 2023), the four facilities included in the study housed 4,883

prisoners, indicating that the study sample accounts for 10.8% of the population in these institutions. Compared to the Serbian census data from 2022 (Vučićević, 2024), the study participants had a higher percentage of individuals with high school diplomas (66.0% vs. 53.1%) but a substantially lower share with vocational college or higher qualifications (5.3% vs. 22.4%).

The average length of prison sentences was 8.23 years (*SD* = 8.54; range 1–40 years). Most participants were held in closed prison regimes (74.3%), while 25.7% were placed in semi-open wards. The most common offence categories were crimes against property (33.5%), human health (30.3%), and life and limb (20.0%), with approximately half of the offences classified as violent crimes. Additional sample characteristics are presented in Table 1.

This study is part of a larger research project (Anonymized). All procedures were approved by the Ethics Committee of the Anonymized and conducted in accordance with the 1964 Helsinki Declaration and its subsequent revisions.

Table 1

Sample Demographic, Criminological and Penological Characteristics (n = 525)

Variable		*n*	%
Age (years)	*M* = 39.99, *SD* = 10.18, *Mdn* = 39.00, Min = 20, Max = 73		
Age (category range)	20–30 years	97	18.5
	31–40 years	205	39.0
	41–50 years	139	26.5
	51 years or older	91	15.4
	Missing data	3	0.6
Education	Elementary school or less	146	27.8
	High school	336	64.0
	Vocational college or higher	27	5.1
	Missing data	16	3.0
Marital status	Single	210	40.0
	Married	105	20.0
	Extramarital union	129	24.6
	Divorced	61	11.6
	Widowed	4	0.8
	Missing data	16	3.0
Number of children	None	230	43.8
	One	122	23.2
	Two	89	17.0
	Three or more	70	13.3
	Missing data	14	2.7
Prison	Sremska Mitrovica	190	36.2
	Niš	181	34.5
	Požarevac–Zabela	125	23.8

	Beograd	29	5.5
Sentence length (years, months)	*M* = 8 y 3 mo, *SD* = 8 y 6 mo, *Mdn* = 5 y, Min = 12 mo, Max = 40 y		
Sentence length (category range)	1 year or less	1	0.2
	Over 1 to 3 years	106	20.2
	Over 3 to 10 years	282	53.7
	Over 10 to 20 years	88	16.8
	More than 20 years	32	6.1
	Missing data	16	3.0
Prison regime	Closed	390	74.3
	Semi-open	135	25.7
Risk category [a] (up to 3 years of imprisonment)	Low-risk	10	6.9
	Middle-risk	74	51.4
	High-risk	59	41.0
	Missing data	1	0.7
Risk category [a] (for more than 3 years of imprisonment)	Low-risk	12	3.3
	Middle-risk	160	43.7
	High-risk	169	46.2
	Very high-risk	24	6.6
	Missing data	1	0.3
Criminal offences	Against human health	159	30.3
	Against property	176	33.5
	Against life and limb	105	20.0
	Against public peace and order	16	3.0
	Against economic interests	12	2.3
	Against sexual freedom	12	2.3
	Other criminal offences [b]	45	8.6
Elements of violence	Violent crime	262	49.9
	Non-violent crime	247	47.0
	Missing data	16	3.0
Time served [b]	6 months or less	62	11.8
	Over 6 months to 1 year	78	14.9
	Over 1 year to 2 years	97	18.5
	Over 2 years	288	54.9
First-time prisoners	Yes	199	37.9
	No	268	51.0
	Missing data	58	11.0

Note. Other criminal offences include offences: against freedoms and rights of man and citizen = 6 (1.1%); relating to marriage and family = 7 (1.3%); against road traffic safety = 4 (0.8%); against government authorities = 3 (0.6%); against legal instruments = 2 (0.4%); against official duty = 2 (0.4%); against humanity and other right guaranteed by international law = 5 (1.0%); Law on public order and peace / obstructing an official in discharging official duties in government authority = 2 (0.4%); missing data = 14 (2.7%).

[a] The last recorded scores of risk assessment of prisoners at the time of data collection. [b] At the time of data collection.

Measures

Participants completed the Serbian version of the MQPL survey (Liebling et al., 2012), which assesses prisoners' experiences and perceptions of the prison's social and moral climate across five thematic categories: *Harmony*, *Professionalism*, *Security*, *Conditions and Family Contact*, and *Well-being and Development*. Details of the Serbian adaptation, validation process, and psychometric characteristics have been reported elsewhere (Međedović, Drndarević, & Milićević, 2024; Milićević, Ilijić, & Vujičić, 2024).

For the purposes of this study, we used the MQPL *Well-being and Development* category, which comprises four dimensions. *Personal Development* evaluates whether the prison environment supports rehabilitation through programmes, activities, and resources aimed at reducing recidivism, including prisoners' perceptions of preparation for release (eight items). *Personal Autonomy* measures the level of control and agency prisoners experience in daily prison life (four items). *Well-being* captures the emotional experience of incarceration, including feelings of pain, stress, and perceptions of imprisonment as punishment (four items). *Distress* reflects emotional disturbance, including suicidal thoughts, coping difficulties, and sleep problems (three items).

All items are scored on a five-point Likert scale. Mean scores are calculated for each dimension and for the overall category, with higher scores indicating better quality of prison life (range 1–5). Together, the Well-being and Development dimensions assess the extent to which the prison environment supports rehabilitation while accounting for prisoners' emotional and psychological well-being (Liebling et al., 2012). In the present study, internal consistency coefficients (Cronbach's α) for the MQPL *Well-being and Development* subscales ranged from .61 to .88 (Table 2).

On the same occasion, we administered the WHOQOL-BREF questionnaire (WHOQOL Group, 1998) to assess the prisoners' individual QOL. This 26-item self-report instrument provides a culturally sensitive assessment of QOL across four domains. *Physical Health* captures perceptions of physical functioning, including daily activities, energy, pain, sleep, and medication dependence (seven items). *Psychological Health* assesses mental and emotional well-being, including self-esteem, mood, spirituality, and cognitive functioning such as memory and concentration (five items). The *Social Relationships* domain evaluates social support, personal relationships, and sexual activity (three items). *Environmental Health* considers financial resources, safety, access to healthcare, physical surroundings, and opportunities for learning and leisure (eight items). Each item is scored on a five-point Likert scale, with higher scores indicating better QOL (range 4–20). In the current sample, Cronbach's α coefficients for the WHOQOL-BREF domains ranged from .78 to .83, indicating acceptable internal consistency (Table 2).

Additional data were obtained from two sources: self-reports (age, number of children, and time served) and correctional records (education, marital status, prison ward, sentence length, offence type, and risk level). The latter was assessed using OASys, a standardised tool used by Serbian prison staff to evaluate prisoner risks, needs, and capacities and to support sentence planning.

Data analysis

Sample characteristics and scores were summarised using descriptive statistics. Data normality was assessed using the Kolmogorov–Smirnov test and visual inspection of histograms for continuous variables.

To examine factors associated with prisoners' perceptions of well-being and development in prison, a series of hierarchical multiple regression analyses was conducted. Five outcome variables were analysed: *Personal Development*, *Personal Autonomy*, *Well-Being*, *Distress*, and a *Global Well-Being and Development Score*. Prison regime (closed = 0, semi-open = 1) was entered as a control variable in the first block of predictors, followed by prisoners' self-rated QOL across the four WHOQOL-BREF domains (*Physical Health*, *Psychological Health*, *Social Relationships*, and *Environment*) in the second block. The models included five predictors in total (prison regime and four WHOQOL-BREF domains). Following commonly used guidelines for multiple regression ($N > 50 + 8m$, m = number of predictors), the minimum required sample size for five predictors is 90 cases (Tabachnick & Fidell, 2019). The current sample size of 525 exceeded this threshold.

Regression assumptions were examined through inspection of residuals to assess linearity, homoscedasticity, independence, and normality of errors. To minimise multicollinearity, Pearson and Spearman correlations, tolerance values, and variance inflation factors were inspected. Outliers exceeding three standard deviations were removed (ten cases for *Distress* and seven cases for the remaining scores), and Mahalanobis distance values were checked for each model. Standardised coefficients (β) were reported to compare predictor contributions, while unstandardised coefficients (*B*) were used to interpret effect sizes. Missing data were minimal (0.2–0.9% across variables) and handled through listwise deletion. All analyses were conducted with a significance level of 0.05.

Results

Table 2 presents descriptive statistics, scale reliabilities, and intercorrelations among the examined variables. Most scales showed satisfactory internal consistency, exceeding the .70 threshold. Lower reliability was observed for *Distress* (α = .61) and

Personal Autonomy (α = .63), which, although slightly below .70, remain acceptable given the small number of items in these subscales.

The observed associations largely align with theoretical expectations. MQPL outcome scores were strongly intercorrelated, particularly with *the Global Score* (*r* = .60–.89). All MQPL scores were also positively associated with WHOQOL-BREF domains. *Environmental Health* showed the strongest correlations with MQPL scores (*r* = .46–.74), followed by *Psychological* and *Physical Health*, highlighting the importance of perceived environmental quality and psychological functioning for prisoners' well-being and developmental outcomes. Regime type was significantly associated with all MQPL and WHOQOL-BREF scores except *Psychological Health*, suggesting that institutional conditions may have a more limited influence on prisoners' cognitive and emotional self-perceptions, including self-esteem, emotional well-being, and cognitive functioning.

Table 2

Descriptive statistics, reliabilities, and the correlations between examined variables

	M (*SD*)	α	1	2	3	4	5	6	7	8	9
1. Personal Development	3.05 (0.96)	.88									
2. Personal Autonomy	3.09 (0.79)	.63	.67*								
3. Well-Being	2.69 (0.96)	.80	.54*	.65*							
4. Distress [a]	3.94 (0.86)	.61	.32*	.47*	.51*						
5. Global Well-Being and Development Score	3.12 (0.74)	.91	.89*	.85*	.80*	.60*					
6. Physical Health	14.72 (3.47)	.83	.39*	.48*	.47*	.53*	.54*				
7. Psychological Health	14.88 (3.15)	.78	.40*	.53*	.49*	.52*	.55*	.64*			
8. Social Relationships	14.32 (3.51)	.83	.30*	.33*	.30*	.32*	.37*	.44*	.52*		
9. Environmental Health	13.13 (3.39)	.80	.66*	.66*	.61*	.46*	.74*	.57*	.63*	.52*	
10. Prison Regime, closed/semi-open (%)	74.3/25.7		.24*	.21*	.26*	.28*	.28*	.24*	.12	.21*	.24*

[a] *Higher scores indicate lower distress levels.*

** The coefficient is significant under Bonferroni correction (p < .001).*

Table 3 summarises the hierarchical multiple regression analyses. *Environmental Health* emerged as the strongest predictor across most MQPL outcomes, whereas *Physical* and *Psychological Health* showed the strongest associations with the MQPL's *Distress*.

Personal Development: In Step 1, prison regime explained 6% of the variance (R^2 = .06). After adding WHOQOL-BREF domains, the model explained 45% of the variance (ΔR^2 = .39), and the regime effect decreased from β = .24 to β = .09. Environmental Health was the strongest predictor (β = .69), followed by Social Relationships (β = −.09), while Physical and Psychological Health were not

significant. A one-point increase in Environmental Health corresponded to a 0.19 increase in Personal Development, whereas Social Relationships showed a small negative association ($B = -0.02$). Placement in a semi-open ward was associated with a 0.19 higher score.

Personal Autonomy: Prison regime explained 5% of the variance in Step 1 ($R^2 = .05$). With WHOQOL-BREF domains included, the model explained 47% ($\Delta R^2 = .43$), and the regime effect decreased from $\beta = .21$ to $\beta = .07$. Environmental Health again showed the strongest association ($\beta = .52$), followed by Psychological ($\beta = .18$) and Physical Health ($\beta = .10$), while Social Relationships showed a small negative association ($\beta = -.10$). A one-point increase in Environmental Health corresponded to a 0.12 increase in Personal Autonomy, and placement in a semi-open ward to a 0.13 higher score.

Well-being: Prison regime explained 7% of the variance in Step 1 ($R^2 = .07$). After including WHOQOL-BREF domains, the model explained 42% ($\Delta R^2 = .35$), with the regime effect decreasing from $\beta = .26$ to $\beta = .13$. Environmental Health remained the strongest predictor ($\beta = .46$), followed by Physical ($\beta = .15$) and Psychological Health ($\beta = .14$), while Social Relationships showed a negative association ($\beta = -.11$). A one-point increase in Environmental Health corresponded to a 0.13 increase in Well-being, and semi-open placement to a 0.29 higher score.

Distress: Prison regime explained 3% of the variance in Step 1 ($R^2 = .03$). With WHOQOL-BREF domains added, the model explained 35% ($\Delta R^2 = .32$), and the regime effect decreased from $\beta = .18$ to $\beta = .09$. Physical ($\beta = .29$) and Psychological Health ($\beta = .26$) were the strongest predictors, followed by Environmental Health ($\beta = .13$), while Social Relationships were not significant. Semi-open placement was associated with a 0.17 higher score, indicating lower distress.

Global Well-Being and Development Score: Prison regime explained 8% of the variance in Step 1 ($R^2 = .08$). After adding WHOQOL-BREF domains, the model explained 59% ($\Delta R^2 = .51$), with the regime effect decreasing from $\beta = .28$ to $\beta = .12$. Environmental Health showed the strongest association ($\beta = .63$), followed by Physical ($\beta = .13$) and Psychological Health ($\beta = .11$), while Social Relationships showed a negative association ($\beta = -.11$). A one-point increase in Environmental Health corresponded to a 0.14 increase in the global score, and placement in a semi-open ward to a 0.20 higher score.

Table 3

Summary of the Hierarchical Multiple Regression Analysis for Variables Predicting Well-being and Development-related Aspects of the Prison Climate among Male Prisoners

		Step 1		Step 2	
MQPL Scores	Predictor/Model	*B*	β	*B*	β
Personal Development	Prison Regime	.51	**.24****	.19	**.09***
	Physical Health			.01	.02
	Psychological Health			-.01	-.02
	Social Relationships			-.02	**-.09***
	Environmental Health			.19	**.69****
	Model R^2 / Adj. R^2 / ΔR^2	.06 / .05 / .06**		.45 / .44 / .39**	
	F (*df1, df2*)	30.20 (1, 516)**		83.82 (5, 512)**	
Personal Autonomy	Prison Regime	.38	**.21****	.13	**.07***
	Physical Health			.02	**.10***
	Psychological Health			.05	**.18****
	Social Relationships			-.02	**-.10****
	Environmental Health			.12	**.52****
	Model R^2 / Adj. R^2 / ΔR^2	.05 / .04 / .05**		.47 / .47 / .43**	
	F (*df1, df2*)	24.48 (1, 516)**		91.22 (5, 512)**	
Well-Being	Prison Regime	.57	**.26****	.29	**.13****
	Physical Health			.04	**.15****
	Psychological Health			.04	**.14****
	Social Relationships			-.03	**-.11***
	Environmental Health			.13	**.46****
	Model R^2 / Adj. R^2 / ΔR^2	.07 / .07 / .07**		.42 / .42 / .35**	
	F (*df1, df2*)	38.42 (1, 516)**		75.18 (5, 512)**	
Distress [a]	Prison Regime	.34	**.18****	.17	**.09***
	Physical Health			.07	**.29****
	Psychological Health			.07	**26****
	Social Relationships			-.01	-.03
	Environmental Health			.03	**.13***
	Model R^2 / Adj. R^2 / ΔR^2	.03 / .03 / .03**		.35 / .35 / .32**	
	F (*df1, df2*)	17.72 (1, 513)**		55.57 (5, 509)**	
Global Well-Being and Development Score	Prison Regime	.47	**.28****	.20	**.12****
	Physical Health			.03	**.13****
	Psychological Health			.03	**.11***
	Social Relationships			-.02	**-.11****
	Environmental Health			.14	**.63****
	Model R^2 / Adj. R^2 / ΔR^2	.08 / .08 / .08**		.59 / .59 / .51**	
	F (*df1, df2*)	43.35 (1, 516)**		146.87 (5, 512)**	

Note. MQPL: Measuring the Quality of Prison Life (theoretical range 1–5); prison regime: 0 = closed, 1 = semi-open; *B*: unstandardised coefficient; β: standardised beta coefficient; R^2: determinant multiple correlation coefficient; Adj. R^2: adjusted multiple correlation coefficient; ΔR^2 :multiple correlation coefficient change; Physical, Psychological health, Social relationships, Environmental health: WHOQOL-BREF domains (theoretical range 4–20).

[a] Higher scores indicate lower distress levels.

* $p < .05$. ** $p < .01$. Statistically significant predictors are given in bold.

Discussion

In this study, we explored the impact of prison regime and QOL on male prisoners' experiences through a series of hierarchical regression analyses. The findings highlight the strong role of environmental aspects of QOL in shaping perceptions of personal development, autonomy, and overall well-being. In contrast, the negative association for the *Social Relationships* domain suggests that peer dynamics in prison may not always function as a protective factor and may reflect complex aspects of prison social life.

The predictive influence of prison regime decreased once QOL domains were included in the models, suggesting that prisoners' subjective experiences of QOL may shape their evaluations of imprisonment more strongly than formal regime classification alone. The relatively high proportion of explained variance in MQPL outcomes, ranging from 35% to 59% across models, further indicates that QOL domains are closely linked to prisoners' evaluations of the prison environment. Several key conclusions can be drawn. Both prison regime and QOL emerged as reliable predictors of well-being and development-related aspects of prison climate, although subjective QOL domains accounted for a substantially larger share of the explained variance. At the same time, a substantial proportion of variance remained unexplained. In other words, additional individual, social, and institutional factors may also shape prisoners' experiences of prison life. Factors such as prior trauma exposure, mental health history, family support, participation in prison programmes, expectations regarding release, sentence length, and coping styles may further influence perceptions of well-being and prison climate (Calles-Rubiales & Ibáñez Del Prado, 2020; Combalbert et al., 2019; Crewe, Schliehe, & Przybylska, 2023; Milićević, 2026; Sanchez-Lastra, De Dios Álvarez, & Ayán Pérez, 2019).

Prison Regimes and Prisoners' Well-being

The type of prison regime consistently predicted several dimensions of the prison experience, with higher well-being reported in semi-open wards than in closed ones. These findings align with studies showing that semi-open regimes, which are characterised by lower security, greater autonomy, and more programming, provide a less restrictive environment and potentially higher QOL. Evidence from Serbia indicates that prisoners in open wards report lower levels of freedom deprivation and more favourable perceptions of prison life than those in more restrictive regimes (Ilijić et al., 2024; Jovanić, Petrović, & Macanović, 2020). Similar differences in freedom and overall prison experience have also been documented in England, Wales, Norway, and the Netherlands, where prisoners in open or minimum-security facilities consistently report more positive evaluations of prison climate and quality of prison life (Bosma et al., 2020; Fardin, 2020; Mastrobuoni & Terlizzese, 2022; Mjåland et al., 2023; Van Ginneken et al., 2018).

Less restrictive prison environments are generally associated with better mental well-being, as greater autonomy and reduced stress can support healthier daily functioning among prisoners (Fardin, 2020; Kundu et al., 2018; Stawinska-Witoszynska, Czechowska, Moryson, & Wieckowska, 2021). Research further suggests that regimes oriented toward rehabilitation may foster a social climate linked to higher quality of life and improved reintegration prospects and may also contribute to lower recidivism rates (Baharudin et al., 2021; Day, Casey, Vess, & Huisy, 2012; Mastrobuoni & Terlizzese, 2022; Van Ginneken & Palmen, 2023). In such settings, opportunities for personal development, social interaction, and autonomy are typically greater, alongside more favourable living conditions. Positive regime features, including structured routines, participation in meaningful activities, and access to support services, have been associated with stronger rehabilitation outcomes (Ricciardelli & Memarpour, 2016; Stephenson, Leaman, O'Moore, Tran, & Plugge, 2021). Conversely, highly restrictive environments characterised by strict control, isolation, limited autonomy, and restricted rehabilitative opportunities may negatively affect prisoners' well-being and behaviour (Bosma et al., 2020; Edgemon & Clay-Warner, 2019; Kozhokaru, 2020).

In comparative terms, European prison systems vary considerably in their penal philosophies and institutional practices. Our findings resonate with wider European debates on the role of prison regimes in structuring prisoners' experiences. Nordic prison systems, for example, tend to be less restrictive and emphasise normalisation and rehabilitation, whereas many Central and Eastern European systems rely more heavily on custodial sanctions and more restrictive institutional environments (Krajewski, 2023; Mjåland et al., 2023; Van De Rijt, Van Ginneken, & Boone, 2023). Serbia, characterised by relatively high incarceration rates and limited institutional resources, represents a resource-constrained system. In this context, our findings suggest that even in such environments, institutional arrangements that promote greater autonomy and less restrictive regimes may contribute to more positive prison experiences.

However, the effects of prison regimes are not always straightforward, and both open and closed prisons may have negative implications for well-being. Experiences may vary across prisoner groups, as regimes can be perceived differently depending on prisoners' circumstances (Van Ginneken et al., 2018). For example, female prisoners may value the routine and stability provided by prison, even in closed settings (Harner & Riley, 2013), whereas young male prisoners may find the structured nature of prison regimes, including open ones, monotonous and difficult to adapt to (Jordan, 2011). Finally, stricter rules can make prisoners feel disempowered and limited, potentially hindering their motivation for positive change (Goomany & Dickinson, 2015).

Environmental Conditions and Well-being in Prison

Across most outcome dimensions, *Environmental Health* emerged as the strongest predictor, particularly for *Personal Development* and the *Global score*. In theoretical terms, this suggests that environmental conditions are not simply a background context of imprisonment but one of the principal ways in which the prison regime is experienced. Prison-climate research increasingly treats the physical environment as an integral component of prison climate itself (Beijersbergen et al., 2016; Paraušić Marinković, 2024), and recent evidence from Norway indicates that outdoor areas and the view from the cell can be approximately as influential as staff–prisoner relationships in predicting overall satisfaction with prison (Pape & Johnsen, 2026). Financial resources, living conditions, safety, recreational opportunities, and access to healthcare, which are the main features of environmental health, play an important role in shaping prisoners' experiences of imprisonment. In our study, its influence is evident in supporting rehabilitation, personal growth, and autonomy (*Personal Development* and *Autonomy*), while also mitigating negative experiences associated with imprisonment, such as pain, discomfort, and tension (*Well-Being*). The only exception was *Distress*, for which *Environmental Health* was not a statistically significant predictor. Instead, *Physical* and *Psychological Health* were the strongest predictors of distress-related experiences, highlighting the importance of addressing physical symptoms and emotional difficulties in reducing suffering and perceived punishment. In this way, *Environmental Health* may indicate whether imprisonment is experienced as habitable, predictable, and decent, which is especially consequential for personal autonomy, personal development, and overall prison well-being (Pape & Johnsen, 2026; Paraušić Marinković, 2024).

This interpretation aligns with literature on prison architecture and behaviour, as *Environmental Health* also reflects material and spatial conditions within prisons. Research shows that layout, safety features, and living conditions closely link to staff–prisoner relationships and the wider prison climate (Beijersbergen et al., 2016; Molleman & Van Ginneken, 2015). Well-designed environments may promote more positive interactions, improve safety, and support rehabilitative goals (Beijersbergen et al., 2016). Spatial configuration is related to the frequency and quality of staff–prisoner contact, affects the balance between informal and formal surveillance, and shapes prisoners' perceptions of fairness and safety. In a large study of remand prisons in the Netherlands, Beijersbergen et al. (2016) found that prison layout related to officer–prisoner relationships. Prisoners in panopticon layouts were less positive than those in other layouts. Those housed in older units and units with more double cells also reported poorer officer–prisoner interactions. Research on direct-supervision design suggests that when staff are located within everyday living areas, with greater visibility and routine interaction, institutions tend to show lower levels of serious violence and greater perceived safety (Wener, 2006).

The implication is not that architecture determines behaviour simply, but that layout structures the everyday conditions under which trust, authority, autonomy, and dynamic security develop or fail to develop (Paraušić Marinković, 2024).

Crowding and density further clarify why *Environmental Health* score may be so influential in the present study. According to recent European prison statistics, Serbia has been reported as operating at 97.9% capacity, meaning that relatively small fluctuations in admissions may push the system into overcrowding (Aebi & Cocco, 2025). Environmental psychology distinguishes between physical space and social density (Wener, 2006), and prison research suggests that the latter is often more psychologically consequential: sharing cells and routines with too many others intensifies stress, conflict, invasion of privacy, and perceived lack of control (Aon et al., 2025). Higher social density is especially detrimental to well-being, whereas overcrowding is independently associated with depression, self-harm, and poorer overall health (Engstrom & Van Ginneken, 2022). Moreover, recent data from England and Wales showed that prisoners in overcrowded cells were 19% more likely to be involved in an assault over a one-year period than those in non-overcrowded cells (Ministry of Justice, 2025). In this sense, overcrowding should be understood not as a simple logistical problem, but as a structural psychosocial risk factor that degrades prison climate, as increased social density compresses privacy, intensifies interpersonal friction, and undermines safety and prison climate.

The strong role of *Environmental Health* aligns with evidence that natural light, restorative views, and access to green or outdoor spaces reduce tension, support reflection, and improve prisoners' subjective well-being. Studies of prison green space and nature contact show that access to greenery, outdoor views, and even indirect exposure to nature through windows or images reduce tension and support calm, reflection, and psychological restoration (Moran, 2019; Pape & Johnsen, 2026). Moran (2019), drawing on Attention Restoration Theory, found that green spaces and nature imagery in a prison setting relieve mental fatigue and help prisoners feel calm and clear their minds. Related work in England and Wales found lower levels of self-harm and violence in prisons with higher percentages of surrounding green spaces, even after controlling for prison size, age, type, and crowding (Moran, Jones, Jordaan, & Porter, 2021, 2022). Studies of male prisoners in China similarly suggest that visibility of nature through windows is associated with greater life satisfaction and well-being, and broader nature exposure is linked to lower depression and greater meaning in life (Li et al., 2021; Zeng et al., 2024). Noise, poor ventilation, thermal discomfort, and inadequate lighting are persistent sensory stressors that can impair sleep, concentration, emotional regulation, and the perceived liveability of the regime (Engstrom & van Ginneken, 2022). Taken together, these findings help explain why *Environmental Health* may be especially important for *Personal Development*, as natural light, outdoor access, and restorative

views can expand cognitive and emotional capacity in otherwise monotonous and stressful environments.

From an environmental-psychology perspective, privacy is defined as selective control over access to the self. Even limited personal space and control over sensory exposure in prison can help sustain agency and self-efficacy under conditions of imprisonment (Altman, 1975; Batrićević & Stepanović, 2020). Privacy, territoriality, and environmental control provide a further mechanism linking *Environmental Health* to *Personal Autonomy* in our study. ater research identifies autonomy, contemplation, rejuvenation, confiding, and creativity as key psychological functions of privacy. Prison design research have applied these concepts to custodial context. For instance, Engstrom and van Ginneken (2022) found that privacy in personal space, control over light or temperature, and relief from persistent noise are design features associated with autonomy, stimulus regulation, and humane treatment. However, autonomy in prison is rarely absolute (Batrićević & Stepanović, 2020; Engstrom & Van Ginneken, 2022), but is often experienced through small opportunities to regulate one's environment, secure minimal territory, and control sensory intrusion. A Danish prison field study reported general dissatisfaction with thermal conditions, airflow, and direct sunlight in cells (Dogbeh, Jomaas, Bjarløv, & Toftum, 2015). *Environmental Health* may therefore predict *Autonomy* not only by reflecting better facilities and services, but also by indicating whether prisoners retain any meaningful degree of environmental self-management.

Finally, the findings of this study align with the literature on normalisation, prosocial versus punitive design, legitimacy, and dynamic security. Designs based on normalisation and dynamic security are significant not because they eliminate punishment, but because they help authority appear more predictable, relational, and legitimate in daily prison life (Van De Rijt et al., 2023). Research on normalisation suggests that prisons resembling ordinary social life are typically smaller, modular, and more home-like, with greater freedom of movement and increased staff–prisoner interaction as informal control. In this context, architecture is important because it can either support or hinder dynamic security and the institution's moral performance (Martens & Crewe, 2025). Studies of new prisons in Norway show that even when design aims for humanity, resettlement, and dynamic security, architectural boundaries can still obstruct these goals if they reinforce control and discipline too much (Johnsen, Bartoszko, Fransson, Pape, & Giofrè, 2023).

Importantly, the literature also cautions against environmental-related determinism as prison quality depends not only on formal security but on fairness, dignity, and the professional use of authority, all of which influence legitimacy (Crewe, Liebling, & Hulley, 2011; Crewe et al., 2023; Liebling & Arnold, 2004). Comparative studies

report better quality-of-life outcomes in Norway than in England and Wales, yet even in the most humane settings, prisoners still experience pain and frustration (Crewe, Ievins, et al., 2023; Crewe, Laursen, & Mjåland, 2023; Martens & Crewe, 2025). Research on Halden Prison indicates that positive design features are not automatically perceived as therapeutic if security practices remain intrusive or punitive (Abdel-Salam & Kilmer, 2023). The implication for the present study is that Environmental Health probably emerged as such a strong predictor because it reflects the various conditions through which legitimacy is experienced in daily prison life (Martens & Crewe, 2025). Where these conditions communicate decency, predictability, and room for agency, they support well-being and development, and vice versa – when they convey crowding, noise, exposure, and punitive control, they intensify the pains of imprisonment (Martens & Crewe, 2025).

Physical and Psychological Health as Predictors of Distress

Our findings show that *Physical* and *Psychological Health* scores are the strongest predictors of *Distress*. To reduce stress levels, prisoners' physical and mental health should be addressed. In this context, physical health includes aspects such as daily functioning, fatigue, sleep quality, ability to work, reliance on medication, and the presence of pain or discomfort. Psychological health encompasses emotional states, self-esteem, and cognitive functioning, including memory and problem-solving. Together, these factors are closely related to severe emotional difficulties experienced in prison, including suicidal ideation, emotional dysregulation, and sleep disturbances.

Previous research suggests that a negative prison climate is associated with poorer physical and psychological health outcomes among prisoners. Many prisoners perceive imprisonment as detrimental to their mental health, with anxiety and depression often intensified by restrictive conditions (Goomany & Dickinson, 2015). Psychological distress may also increase the risk of victimisation and misconduct, contributing to a more stressful and less safe prison environment and negatively affecting the overall prison social climate (Bosma et al., 2020; Calles-Rubiales & Ibáñez Del Prado, 2020).

Conversely, prisoners who perceive the prison climate more positively tend to report fewer mental health symptoms and better well-being. This pattern is particularly evident among prisoners engaged in institutional activities (Gonçalves et al., 2016) and those who recognise certain stabilising aspects of prison life, such as routine, structure, or access to healthcare (Goomany & Dickinson, 2015). More generally, positive perceptions of prison climate are associated with higher levels of well-being, even when the overall unit climate is less favourable (Van Ginneken et al., 2019).

Early studies suggest that providing opportunities for physical activity and promoting healthy lifestyles can improve prisoners' overall well-being (Kasser, 1996). Later research shows that access to exercise facilities and sports activities can positively affect physical health, provide meaningful engagement, and enhance prisoners' QOL (Meek & Lewis, 2012; Obadiora, 2018; Van Ginneken et al., 2018). Empirical evidence further indicates that structured exercise programmes can improve mood and reduce anxiety among prisoners (Psychou et al., 2020), while broader reviews emphasise the role of physical activity in emotional expression, improved emotional functioning, and overall well-being (Sanchez-Lastra et al., 2019).

As previous works have shown, promoting well-being among diverse prisoner populations also requires addressing specific health needs and ensuring equitable access to healthcare (Gonçalves et al., 2014). The principle of 'equivalence of care' holds that prisoners should receive healthcare of the same standard as individuals in the community (Plugge, Douglas, & Fitzpatrick, 2008). Vulnerable groups, particularly those with chronic conditions, mental health problems, or specific needs related to age, gender, or ethnicity, often face limited access to adequate services (Haesen, Rauch, Elger, & Rost, 2021; Harris, Hek, & Condon, 2007). These difficulties may be compounded by limited staff training, insufficient resources, restricted digital access, fragmented healthcare administration, and the complexity of managing certain medical conditions in custodial settings (Bellali et al., 2020; Brooke & Rybacka, 2020; Tavoschi, O'Moore, & Hedrich, 2019).

Prison climate may create additional barriers to healthcare access. In restrictive environments, prison officers may act as gatekeepers between prisoners and medical services (Ross et al., 2011). Lack of privacy and tensions between security and healthcare goals can further reduce trust in the prison healthcare system. Prisoners who distrust the system are less likely to seek care, which may lead to poorer health outcomes (Vandergrift & Christopher, 2021). In other words, a prisoner's perception of the prison climate, their understanding of the healthcare system, and their individual characteristics can all be barriers to accessing healthcare (Capon et al., 2020). Conversely, supportive prison climates can improve access to healthcare by facilitating communication with medical staff and encouraging prisoners to take a more proactive role in managing their health and well-being (Avieli, 2023; Ross et al., 2011).

Social Relationships in Prison Life

Interestingly, the *Social Relationships* domain was significantly negatively associated with all MQPL scores except Distress. This finding suggests that social relationships in prison may not function as uniformly protective resources. Although social support is generally associated with better well-being, prisoner relationships are

often shaped by distrust, conflict, informal hierarchies, and strategic interactions specific to highly controlled institutional environments (Crewe et al., 2023; Ricciardelli & Memarpour, 2016). In such contexts, maintaining emotional distance or selectively disengaging from interpersonal relationships may itself represent an adaptive coping strategy (Gullone et al., 2000).

At the same time, the quality and dynamics of social relationships in prison are more complex than captured by the WHOQOL-BREF's *Social Relationships* domain. Research consistently demonstrates that relationships characterised by respect, fairness, and professionalism, particularly between staff and prisoners, are central to the prison climate and well-being (Crewe et al., 2011; Hulley, Liebling, & Crewe, 2012; Liebling & Arnold, 2004; Liebling et al., 2021; Milićević, 2025). However, prison environments are also associated with social isolation, strained interpersonal relations, and exposure to conflict, all of which may contribute to loneliness, alienation, and reduced morale, but also undermine the beneficial effects typically associated with social connectedness in community settings (Lammek, 2020; Lawrence & Andrews, 2004).

Previous studies report mixed findings regarding the effects of prisoner relationships on well-being (Kreager, Palmen, Dirkzwager, & Nieuwbeerta, 2016; Kyprianides & Easterbrook, 2020). Some studies report positive effects of social relationships on adjustment and well-being, whereas others identify limited, ambivalent, or negative effects Previous research suggests that positive interactions and group belonging can contribute to a more favourable prison climate and better adjustment to imprisonment (Calles-Rubiales & Ibáñez Del Prado, 2020; Vaičiūnienė & Tereškinas, 2017), while other studies indicate that prison social relationships may also be emotionally demanding, conflictual, or psychologically burdensome (Lindquist, 2000). Similarly, a recent study in Serbia found that more positive relationships with staff and other prisoners were associated with higher well-being and lower distress (Ilijić et al., 2024), highlighting the complexity and multidimensional nature of prison social relations.

The negative associations observed in the present study may therefore reflect adaptive forms of self-reliance and selective disengagement from prison social dynamics. Prisoners who are less invested in interpersonal relationships may redirect their attention toward coping with institutional demands, maintaining emotional stability, or focusing on personal development (Van Ginneken, 2016). In this sense, lower satisfaction with social relationships does not necessarily indicate poorer adjustment, but may instead reflect adaptive strategies developed in response to the social realities of imprisonment.

Strengths, Limitations and Future Directions

To our knowledge, this is the first study in Serbia to examine prisoners' quality of life using the WHOQOL-BREF alongside prison-specific measures. By analysing the combined effects of prison regime and individual QOL on multiple dimensions of the prison experience, the study offers several contributions. First, it provides new insights into the relationship between self-reported QOL and indicators of institutional climate in correctional settings. Second, it identifies unexpected patterns, including a negative association between social relationships and overall prison climate. Finally, integrating standardised QOL metrics with the MQPL framework at the institutional level represents an important methodological contribution.

Several limitations should be acknowledged. The cross-sectional design restricts causal inference and does not allow conclusions about the direction of associations between prison experiences and well-being outcomes. In particular, it cannot be determined whether semi-open prison regimes contribute to better well-being and quality of prison life, or whether prisoners with more favourable psychological and behavioural profiles are more likely to be assigned to semi-open conditions.

Although the sample size was sufficient for the analyses and data were collected in four major correctional institutions, the study relied on convenience sampling following a public invitation to participate. As participation was voluntary, the possibility of self-selection bias cannot be excluded. Prisoners experiencing higher levels of distress, institutional distrust, or disengagement may have been less likely to participate, potentially affecting the representativeness of the findings. Furthermore, the study included only male prisoners. The findings may therefore not generalise to female prison populations or to prison systems with substantially different institutional cultures, sentencing practices, regime structures, or resource conditions.

Reliance on self-report measures may also introduce social desirability bias, potentially affecting the accuracy of reported experiences. In addition, the internal consistency of the *Distress* and *Personal Autonomy* subscales was at the lower limit and below the conventional .70 threshold. Although this may partly reflect the small number of items, lower reliability can increase measurement error and attenuate associations with other variables (Armstrong, 1990). Consequently, relationships involving these constructs may represent conservative estimates of their true effects (Cui & Yi, 2025), and their magnitude should be interpreted with caution.

The present study focused on the *Well-being and Development* dimensions of the MQPL framework, which are conceptually closest to prisoners' well-being outcomes. Future research could examine how other dimensions of prison climate, such as staff–prisoner relationships, safety, or professionalism, relate to prisoners' subjective well-being. Further studies may also explore the dynamics of social

relationships in prisons and their effects on everyday prison life, including distress. Longitudinal designs could help clarify causal pathways between these factors and prison outcomes. Additional contextual factors, such as overcrowding, length of incarceration, and time served, may also help deepen understanding of QOL in prison populations.

Practice and Policy Implications

Our findings have important implications for debates on factors that support rehabilitation and reintegration in custodial settings. They align with the broader prison climate literature emphasising the role of relational and environmental aspects of imprisonment in shaping the rehabilitative potential of prison environments (Crewe et al., 2011; Kyprianides & Easterbrook, 2020; Liebling et al., 2021; Van Ginneken & Palmen, 2023; Van Ginneken et al., 2019). The strong influence of environmental and psychological dimensions of QOL suggests that prison environments promoting autonomy, personal development, and well-being may foster more constructive prison experiences and create conditions more conducive to rehabilitation, reintegration, and reduced recidivism (Auty & Liebling, 2020; Barquín et al., 2019; Mastrobuoni & Terlizzese, 2022). The results also indicate that less restrictive regimes, such as semi-open settings, may provide institutional conditions more supportive of prisoners' well-being and development.

These findings highlight the importance of environmental aspects of imprisonment, including safety, access to healthcare, and opportunities for personal development, in shaping prisoners' lived experiences. Although the cross-sectional design prevents causal conclusions, the results suggest that improving these conditions may support more positive prison experiences and reduce distress.

The negative association between social relationships and well-being and development also points to the importance of addressing social dynamics within prisons. Interventions that promote constructive social interactions, supportive relationships, and meaningful opportunities for engagement may help mitigate the effects of social isolation and contribute to prisoners' well-being and rehabilitation prospects.

Conclusion

Both prison regime and prisoners' perceived QOL help explain variation in prison climate and well-being outcomes. Although physical pain and discomfort were reported in both semi-open and closed facilities, prisoners in semi-open settings perceived these challenges as less severe and more manageable. Greater autonomy within the prison environment appears to shape prisoners' quality of life and their

evaluations of prison climate. In this sense, the physical and social conditions of semi-open regimes may contribute to more positive experiences of well-being and personal development. Interestingly, social relationships were negatively associated with most MQPL outcomes, suggesting that prisoners sometimes reported more positive perceptions of autonomy and well-being despite limited social support. This pattern may reflect the complex dynamics of prison social life and coping strategies in which maintaining social distance helps preserve autonomy and emotional stability in high-stress environments.

Our findings extend previous research by showing that improving prisoners' QOL may provide a useful starting point for enhancing prison environments. Prison administrations could support this by expanding opportunities for autonomy, self-directed activities, and structured programmes that promote personal development. The results also highlight the importance of considering prisoners' subjective perceptions of QOL when examining links between prison climate and psychological outcomes such as distress and autonomy.

From a policy perspective, institutional practices that support autonomy, personal development, and less restrictive regimes may foster more constructive prison environments and support broader penal goals, including successful reintegration and reduced reoffending in long-term. Future research should examine these relationships using longitudinal or mixed-methods designs to better understand how prison environments shape prisoners' experiences over time.

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