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Factors of Violence: A Study in Greek Prisons

This article presents the main findings of a research study on the development of violence in Greek prisons after 2009, considering prison density, prisoner/staff ratio (2015–2019) and prison size. The data cover interpersonal violence among inmates and against staff from the 34 prisons in Greece as recorded by the Ministry of Citizen Protection (General Secretariat of Crime Policy). In the first and second sections, the article briefly presents the findings of existing studies on factors associated with prisoners' misbehavior. The third section contains the empirical research. In the fourth section, some conclusions and remaining issues for further research as well as policy implications for Greek correctional institutions are discussed. This research confirms the results of several studies, i.e. that prison density, prison size and inmate/staff ratio as single factors are not enough to explain violence in prison.

Keywords: overcrowding, prison disorder, prison size, staff training

Faktoren der Gewalt: Eine Studie in griechischen Gefängnissen

In diesem Artikel werden die wichtigsten Ergebnisse einer Forschungsstudie über die Entwicklung der Gewalt in griechischen Justizvollzugsanstalten nach 2009 vorgestellt, wobei die Gefängnisdichte, die Gefangenen/Personal Ratio (2015-2019) und die Gefängnisgröße berücksichtigt werden. Die Daten beziehen sich auf interpersonale Gewalt unter Gefangenen und gegen Bedienstete in den 34 griechischen Strafanstalten, wie sie vom Ministerium für Bürgerschutz (Generalsekretariat für Kriminalpolitik) erfasst wurden. Im ersten und zweiten Teil des Artikels werden die Ergebnisse bestehender Studien über Faktoren, die mit dem Fehlverhalten von Gefangenen in Verbindung stehen, kurz vorgestellt. Der dritte Teil enthält die empirische Untersuchung. Im vierten Teil werden einige Schlussfolgerungen und offene Fragen für die weitere Forschung sowie politische Implikationen für die griechischen Justizvollzugsanstalten diskutiert. Diese Untersuchung bestätigt die Ergebnisse mehrerer Studien, wonach die Gefängnisdichte, die Gefängnisgröße und die niedrige Ratio zwischen Gefangenen und Personal als einzelne Faktoren nicht ausreichen, um Gewalt in Strafanstalten zu erklären.

Schlagwörter: Gefängnisgröße, Personalausbildung, Regellosigkeit im Gefängnis, Überbelegung

1. Introduction

Although inmate violence is a significant factor in prison life and the operation of prisons in Greece, it is an issue that has only been sporadically discussed by Greek experts, competent ministers and political parties. Even when the topic is addressed, the discussion is based on

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specific events rather than on a strategy to control the problem based on studies and empirical data. Violence is perpetrated by prisoners against other prisoners and staff. Violence therefore affects both groups, including the staff of public psychiatric hospitals attacked by patients convicted of criminal offences, which pose a danger to public safety.² The use of force and violence by staff against prisoners has negative professional consequences for the person who uses it, for the prison organization due to the reactions it can provoke in the inmate population and the threat it can pose to order in the prison.

This study focuses on violence among prisoners and violence against staff, but not in terms of collective reactions (i. e. riots). Self-inflicted harm is also excluded. Violence among prisoners is difficult to detect because conflicts are usually resolved by the prisoners themselves. Only serious cases become known. Inmate-on-inmate violence in Greek prisons was first highlighted in a report published by the European Commission for the Prevention of Torture (CPT) in 2005 during its fourth periodic visit to Greece (CPT/Inf, 2006, 41, par. 75, 82, 83; CPT/Inf, 2010, 33, par. 89). Since then, remarks on prison violence have appeared from time to time in the CPT's reports (e. g. CPT/Inf 2014, 26, par. 132), which also mentions the defeated feelings of staff due to overcrowding and growing violence, as well as the frustration of the helpless prisoners as they realize that the prison administration is not able to offer them effective protection (see CPT/Inf, 2006, 41, par. 123). Similarly, the assistant Ombudsman for human rights pointed out in May 2007 that the growing population was creating substandard prison conditions, leading to disciplinary violations and criminal behavior within prisons (see also Ombudsman, 2008). Moreover, the Confederation of Prison Officers in Greece (OSYE, 2017; OSYE, 2018; OSYE, 2019) has stressed several times on its official website and in its press releases that prison staff training is generally inadequate, especially for issues relating to security, order and self-protection

The consecutive prison decongestion measures that have been implemented four times between April 2015 and August 2019 and the moderate staff increase do not appear to have decreased attacks against staff or interpersonal violence among prisoners.

International research about the causes of prison violence, its forms and the methods to deal with it is quite extensive. This article will limit its scope to the causes of violence.

2. Factors of Violence: General Findings from Existing Studies

Only complete models of the interpretation of prison life can shed light on the causes of prison violence. According to the pioneers of prison sociology (Clemmer, 1940/1958; Sykes & Messinger, 1960; Schrag, 1961), as well as eminent penologists after them (e. g. Bottoms, 1999; Homel & Thompson, 2005), prisons are not normal environments. They are not only 'total institutions' that fully regulate the lives of their inmates; they are also physical spaces with specific 'moral' values, which have been designed as places of punishment (Homel & Thompson, 2005, p. 101).

Prisons hold people with serious criminal records, troubled social backgrounds—often with a long history of violence as victims or perpetrators—in confined spaces against their will (Drossou, 2016). These individuals come into close contact with each other and with the staff,

² Law 4509/2017, Arts 1[1], 3[1].

who are far fewer in number, and there is a vast power imbalance between them and the staff (Homel & Thompson, 2005, p. 101).

In prison sociology, there are two classical models for interpreting inmate behavior: the deprivation model and the importation model. According to the deprivation model, prisoners create a subculture that can eventually promote violence in order to feel that they control a part of their lives (Sykes et al., 1960). In other words, the ‘pains of imprisonment’, or *stressors*, generate and reproduce violence (Tew et al., 2015; see also Hartenstein et al., 2017). The cultural importation model focuses on inmates’ social and criminal backgrounds and their links to criminal groups as well as their cultural values in free society (Irwin & Cressey, 1962; Schrag, 1961). Research has equally confirmed both models. Newer research has found that young age, short sentence length, gang membership and a pre-existing record of violent disciplinary violations in prison are related to prison violence as well (for an overview, see MacGuire, 2018). In the last two decades, new approaches have been developed that complement the classical approaches, including the dynamic, transactional model (Bottoms, 1999) and the occasional, situational model (Wortley, 2002, pp. 115-132).

The transactional model focuses on “the continual dynamic process of interaction between the prisoners, the staff, and the environment they both inhabit” (Bottoms, 1999, p. 212). External influences (e. g. political pressures on prison directors) are also in a dynamic interaction. For example, Mandaraka-Sheppard’s study (1986) on the dynamics of inmate aggression in six women’s prisons in the mid-1980s in England concluded that older inmates and other inmates who usually did not cause problems, tended to contribute to violent incidents when the administration was at risk of losing control of the prison for a variety of reasons (e. g. provoking the reaction of the prisoners due to severe disciplinary sanctions or the refusal of a [mass] request). Therefore, violence is a result of both the people who are there and their interactions with the environment (Mandaraka-Sheppard, 1986, p. 249; Wortley, 1996, pp. 115-117; see also Stenström & Pettersson, 2021).

The situational model focuses on the relationship between “specific kinds of behavior and specific aspects of the immediate environment” (Wortley & Summers, 2005, p. 5). Wortley (2002) argues that the prison environment is, first, the source of stresses and strains that may precipitate disorder (e. g. overcrowding, depressing architecture, inmate violence), and, second, provider of opportunities for disorder (e. g. inadequate surveillance, access to contraband). For example, research by Edgar et al. (2012, pp. 101-123) indicates that the likelihood of conflict and violence increases when it is assumed that the impact of conflict on staff behavior, prison rules and so on will be high, as well as when a reaction from competent government authorities is anticipated (see also Spain, 2005, p. 73).

In summary, research has identified that the main factors which affect the regular operation of a prison and cause outbreaks of violence are as follows.

2.1 Prison Management and Accountability

Several studies have shown that poor prison management and control is the most significant factor contributing to individual and collective prison violence (Ekland-Olson, 1986; Homel & Thompson, 2005, pp. 104-105; Light, 1990; MacCorkle et al., 1995; Wooldredge, 2020). Research has also found that management policies that enhance the responsibility of prisoners

and minimize deprivation of liberty – for example, supporting prisoners' bonds with their families and ensuring fair enforcement of the prison rules – can reduce prison problems (Bottoms, 1999; Sparks & Bottoms, 1995). Moreover, in a literature review on prison violence, MacGuire (2018, p. 5) notes that lower levels of violent misconduct are related to prisoners' feelings that they are treated in a procedurally fair and just way (Neubacher, 2020).

2.2 Overcrowding and Prison Size

Several studies have examined whether violence is produced by the tension caused by *overcrowding* in prisons. They have found that overcrowding (in terms of rate of turnover and population density) is by no means a causal or main factor in violence; however, it can contribute to violence when combined with other factors, such as poor management, untrained staff and high staff turnover (Gaes, 1994; Ruback & Carr, 1993; Tartaro, 2002b).

According to the meticulous meta-analysis of Franklin et al. (2006), inmate crowding emerged as a weak predictor of violence and misbehavior in prison. Similarly, the meta-analysis of Gadon et al. (2006, p. 526, with various studies cited) found a non-significant relationship between crowding and institutional violence.

Furthermore, older and newer studies associate overcrowding with prison size, prison regime (large prisons are usually maximum security) and prison effectiveness (Baggio et al., 2019; Farrington & Nuttall, 1980). *Prison size* is regarded as a significant indicator for predicting prison violence, but the findings concerning the impact of prison size are inconsistent. For example, Farrington and Nuttall (1980) concluded that assault rates for small and large prisons did not differ to a statistically significant degree, whereas MacCorkle et al. (1995) found that larger institutions (those with large average daily populations) had higher prisoner-staff assault rates; however, these prisons reported somewhat lower levels of assaults among prisoners. The latter again indicates that other factors might be more related to violence and the general behavior of convicts in prison (and after their release) than prison size.

In addition, MacGuire (2018, p. 5), in his overview, found that studies which reported better physical conditions in prisons were associated with lower levels of violence, that prisoners experiencing higher levels of deprivation had higher levels of misconduct (Bierie, 2012; Rocheleau, 2013) and that higher levels of security were associated with greater likelihood of prison violence (Camp et al., 2003; cf. Hofinger & Fritsche, 2021).

2.3 Prison Architecture

Prison architecture and prison size have sometimes been used as interchangeable concepts in literature, but it is not the same. Research in Europe and North America has defined three generations of prison design. The first generation of prison architecture dates back to the 18th and 19th centuries and corresponds to Bentham's Panopticon and, later its variation, the radial design (the 'Big House'). The space in these prisons is divided into rows of cells that consist of self-contained cell blocks. The second generation of prison design has a linear construction with dormitories and cells along long corridors (a 'telephone pole' design). In the third type, referred to as a podular design, cells, dormitories or sleeping rooms are positioned around the perimeter of a common dayroom 'pod', forming a housing/living unit.

Several studies have shown that group cell housing (wards/dormitories), namely prisoners living in a relatively small space, contributes to interpersonal violence, especially when there are neither security guarantees nor adequate selection procedures for inmates to be placed in wards (Dent et al., 2015). Individual cells significantly reduce the potential for victimization and violence, but not for self-harm and suicide, which are more likely when inmates are alone in cells. This is why in Greek prisons, inmates who are likely to harm themselves are not usually left alone even when it is possible, actually when there is enough space.

Moreover, studies have found that the linear architectural design of most prisons exacerbates violence due to the blind spots it creates (Farbstein et al., 1989; Zupan & Menke, 1991). In addition, assaults are more common in cell areas than in work areas in linear prisons (MacGuire, 2018, p. 4). The ‘new prison philosophy’ architecture developed in the 1970s, which adopts the podular design, reduces the number of unprotected spaces and facilitates direct supervision of prisoners (Tartaro, 2002a; Thelen, 2020; Woodruff, 2017). However, the relevant empirical studies for podular design are far fewer in number than those for linear design, and their results are contradictory (Grant & Jewkes, 2015; Tartaro, 2000, 2002b). In addition, researchers warn that the successful implementation of podular design depends to a large extent on good governance, along with the selection and training of appropriate staff (Edgar, 2015, p. 24; Farbstein et al., 1989).

2.4 Staff Training

The selection and training of staff is crucial to any prison administration policy. Training programs (preliminary and recurring) for prison staff, primarily of guards, and support for prisoners seem to improve relations between the two groups and reduce violence against staff (Love, 1994).

Staff inexperience is one of the most important factors related to assaults against them (Kratcoski, 1988). Although there is evidence against a causal relationship, it is undeniable that “inexperienced prison officers are more likely to engage in violent incidents because they are considered by inmates as ‘ambiguous’” (Munro, 1995, p. 245; see also Crewe & Liebling, 2015, p. 14; CPT/Inf (2006) 41, par. 123).

2.5 Vulnerability to Violence

Research shows that (a) young people, homosexuals, transgender people and specific types of offenders (e. g. sexual offenders, drug offenders/addicts) are more vulnerable to victimization in prison, and (b) some inmates feel more vulnerable, and are in fact more vulnerable, to victimization and violence (Cooley, 1993; Edgar & O’Donnell, 1998, p. 638). However, UK studies have found that victims and perpetrators are not necessarily separate groups; a single group or individual may both victimize and be victimized (Edgar et al., 2012, pp. 55-79; 98-100; Homel & Thomson, 2005, p. 6; see also Hofinger & Fritsche, 2021). Furthermore, an American study found that the relationships between exposure to different types of violence and some forms of maladjustment (disruptive behavior and/or mental problems) varied across facilities, and the variation was influenced by the characteristics of the facilities in which prisoners were serving their sentence (Steiner & Meade, 2013).

2.6 Gang Membership

Research on gang membership and prison violence in the US demonstrates that belonging to a gang increases rates of violence and other forms of misconduct; yet, this must be considered in relation to the extent to which a prisoner is embedded within the gang, namely whether the prisoner is a core or peripheral gang member (Gaes et al., 2002). In his overview, MacGuire found “a clear association between gang membership and likelihood of engaging in prison violence”, despite “some complex patterns” within these findings (e. g. gang membership before prison appeared less important than prison gang affiliation) (2018, p. 5; see also Muntigh, 2009, pp. 15-16).

3. The Research

3.1 General Information about Greek Prisons

The Ministry of Citizen Protection (formerly the Ministry of Justice) runs 34 public prisons. Considering that in 1980, there were 28 prisons, in 1995, 27 and in 2004, 29, it is obvious that the construction of new prisons has remained at a low level in the last 40 years. Whereas Prison Law (Law 2776/1999 Penitentiary Code) provides for the distinction between Type A (for people on remand, declared guilty for debts and those sentenced to short-term imprisonment) and Type B (for the rest) prisons *on the basis of crimes and sentences* (Law 2776/1999 Penitentiary Code, Art. 19), the Ministry actually distinguishes in practice five categories of institution on the basis of *prison regime, gender and age*³: (a) three farming half-way houses (rural) and one Central Prison Supply Storage Centre for inmates working in the bakery of the largest prison complex in the country; (b) three institutions for juvenile offenders (males 18–25 years of age)⁴; (c) eight closed prisons, one of them for convicted females; (d) three therapeutic institutions (one general hospital, one mental hospital and one detoxification center for drug addicts) and (e) 16 judicial prisons,⁵ all of them closed, one for females awaiting trial. ‘Judicial’ and ‘closed’ prisons run under the same regime.

There are no private prisons or public-private partnerships operating in the Greek prison system. The institutions are dispersed all over the country. The current nominal prison capacity is 11,001 prisoners (WPB-ICPR, as of July 16th, 2021), and the inmate population density (hereinafter: population density), or occupancy level, has risen to 108.1 %. This is higher than in 2018 (101 %) and higher than the median population density per 100 available places in penal European institutions in the same year, which is 91.4 inmates per 100 places (Aebi & Tiago, 2018, p. 65). In 2013, the population density temporarily rose to 134 % (as of September 1st, 2013), the highest in Greek prison history. The population density initially decreased to 97.4 %

³ See also Law 3772/2009, Art. 20[1]; Ministerial Decree 103920/2009, which introduced type C units and prisons for difficult and dangerous convicts and their abolition a few years later (Law 4322/2015, Art. 1[1]).

⁴ Since 1998, there are no institutions for female juvenile offenders; those few given a prison sentence are accommodated in a special section of the prison for female convicts.

⁵ The judicial prison is typically for people awaiting trial. They are either on remand or they are to be tried on appeal or have been convicted for one offence and are on remand for a second one. In practice, they are common closed prisons.

in December 2015, then increased again to 99 % in June 2017 and further to 106.8 % in January 2019 (WPB-ICPR, 2017; 2020), despite the amendments on early release introduced in April 2015 and renewed three more times until August 2019 by the government.⁶

According to the General Secretariat of Crime Policy (hereinafter: General Secretariat) data concerning the prison population between 2015–2021, 21–32.6 % are detainees awaiting their trial, 53–60 % are of foreign nationality, 4.5–5.5 % are women, 10 % are between 18 and 25 years of age, 8.1–10 % are serving a life sentence, 19–22.4 % are serving a prison sentence over 15 years, and 4.8–10 % are serving a prison sentence for one to five years.

It is also worth mentioning the remarkably unequal distribution of staff across prisons. For example, in 2019, in a therapeutic institution, there was an inmate/staff (guards and special staff) ratio equal to .28 inmates per one staff member (23 inmates and 81 staff); in a female prison, this ratio was equal to .48 (131 inmates and 271 staff). Furthermore, the ratio of a general prison was equal to .72 (28 inmates and 39 staff), whereas in the country's largest prison with 1,474 inmates, there were 141 staff and the ratio equal to 10.45; in a general prison in the south of Greece, the ratio was 4.68 (529 inmates and 113 staff), while another general prison in the north of Greece, this ratio was 4.79 (584 inmates and 122 staff).⁷

Most Greek prisons are of the second prison design, the linear architectural design. A few exceptions to the linear design are prisons from the 19th century constructed in a radial design, while there are no podular prisons.

3.2 Data and Limitations of the Study

In this study, two different datasets are analyzed. The first dataset refers to the 34 prisons operating in Greece between 2009 and 2019. It includes the total number of prisoners (sentenced and on remand) and the total number of serious incidents for each year. To gather information about the prison population, the authors have used the Justice/Prison Statistics of the Hellenic Statistical Authority (ELSTAT) and the official website of the General Secretariat (from January 1st or December 31st of each year), whereas the number of incidents was provided by the General Secretariat in March 2020.

The second dataset again refers to all 34 prisons operating in Greece during the period 2015–2019. For each prison, a set of annual data including the number of inmates, the official capacity, the total size of the prison (in 1,000 square meters), the number of prison staff (for two years only: 2018–2019) and the number of incidents among prisoners and against staff (for three years only: 2015–2016 and 2019) were included. This dataset was also provided in March 2020 by the General Secretariat. The information has discontinuities (therefore, in our tables some information are missing, being denoted by dashes) because there is no central database in the Secretariat into which each prison registers facts and figures in a standardized form, apart from general statistics on the number of prisoners, their gender, age, categories of sentences, etc. Thus, data collection is reliant on the diligence of each prison director or General Secretary.

Interpersonal violent incidents include only physical assaults and abuse among prisoners, whereas against staff, they include physical assaults and serious threats of exercising violence.

⁶ Laws 4322/2015, Arts 14 [3,4]; 4411/2016, Arts 9,15 [1]; 4489/2017, Arts 43, 44; 4571/2018, Art.13, extended up to 31.8.2019.

⁷ Authors' calculations based on the General Secretariat of Crime Policy data.

This means that in the recorded incidents, whatever misconduct took place against the rules of the prison is not included. The recorded incidents were more or less the same types of 'interpersonal violence', and in a few incidents 'possession of a sharp object', 'exercise of psychological violence' or 'encouragement of other prisoner(s) to exercise violence' were also noted as further disciplinary violations.

The main aim of the study is to answer the following research questions:

1. How does overcrowding affect the number of violent incidents in prisons?
2. How does prison size affect the number of violent incidents?
3. How does the inmate/staff ratio relate to violent incidents?
4. Do prisons with loose prison management and prisoner surveillance (e. g. agrarian prisons, semi-open prisons, juvenile institutions) have fewer violent incidents?
5. Do young inmates serving their sentences in juvenile institutions have a higher record of violent incidents than adult prisoners serving their sentences in general institutions?

3.3 Method and Measures

First, we examine the general development of incidents in relation to the prison population for the period 2009–2019. Second, we study whether the number of violent incidents has changed from year to year (considering the years 2015–2019, since only for these years do we have more detailed information) in Greek prisons. In addition, we examine how factors such as prison size, overcrowding, inmate/staff ratios and type of prison affect this number.

For the analysis, we have used the number of violent incidents recorded by each prison and the total number of violent incidents across all prisons, distinguishing between violent incidents among prisoners and prisoners' assaults and credible threats (e. g. hostage) against the staff. Because it is reasonable to assume that large prisons, which have high numbers of inmates, would have more incidents, prison violence has also been assessed in terms of the number of incidents per 100 prisoners. Therefore, the analysis takes into account (a) the (absolute) number of incidents and (b) the proportion of incidents (per 100 prisoners). These two measures have been calculated for incidents among prisoners, for incidents between prisoners and staff and for the total number of incidents (the sum of the previous two).

Prison size is measured by the total area of the prison (in 1,000 square meters). To obtain the inmate/staff ratio, the number of prisoners in each prison has been divided by the number of staff. To count the staff, the number of prison guards, external guards and specialists working in prisons (psychologists, sociologists, criminologists and social workers) has been cumulatively considered. The remaining staff (e. g. administrative, medical) have not been included because they are not in everyday contact with the prisoners, and the medical staff in particular have high turnover.

Prisons are divided into two types: according to gender and age (Prison Type 1) and according to prison regime (Prison Type 2). The codification is based on the prison types foreseen by the Prison Law and subdivided for practical reasons by the Ministry of Justice/ General Secretariat of Crime Policy, presented in the beginning of this section. Prison Type 1 includes prisons for: (a) males (N=29); (b) females (N=2) and (c) young males (N=3). Prison type 2 includes (a) prison farms and the central prison supply storage center (N=4); (b) general prisons (N=24); (c) therapeutic institutions (N=3) and (d) institutions for young males (N=3).

To quantify overpopulation, two measures have been used: population density and spatial density. Population density, or occupancy level, is calculated by dividing the number of prisoners in each prison by the official capacity of the prison. Spatial density is calculated by dividing prison size (total area) by the number of prisoners to find how many square meters correspond to each prisoner. Although this measure is different from the prison cell spatial density, which only considers the size of the cells (not the total area), assuming that most of the facilities' space serves the everyday life of prisoners, it still provides us with some insight on this aspect. Moreover, prison size is taken into account by carceral geographers.

Therefore, the numbers (absolute or proportional) of inmate-on-inmate and inmate-on-staff incidents are of key interest and serve as dependent variables. The independent variables are prison size (in 1,000 square meters), population density and spatial density. The inmate/staff ratio is also considered an independent variable, although data are only available for two years (2018 and 2019). Prison type is also taken into account.

3.4 Data Analysis

The data analysis starts with a set of descriptive measures and graphs, revealing the most prevalent characteristics of the two datasets. Afterwards, we mainly focus on the second (more detailed) dataset to model the number of incidents (aggregately or per 100 inmates) by considering the effects of the independent variables. Because the data consist of repeated measures for each prison for a period of five years, we rely on the theory of linear mixed models (e. g. Hedeker & Gibbons, 2006) instead of other statistical techniques, such as the (ordinary) linear regression models, wherein the assumptions of independent observations and constant parameter values over subjects are crucial. The data analysis was carried out using SPSS 28.0 and R.

3.5 Results

Figure 1. Stock Prison Population and Number of Incidents (in secondary axis), 2009–2019

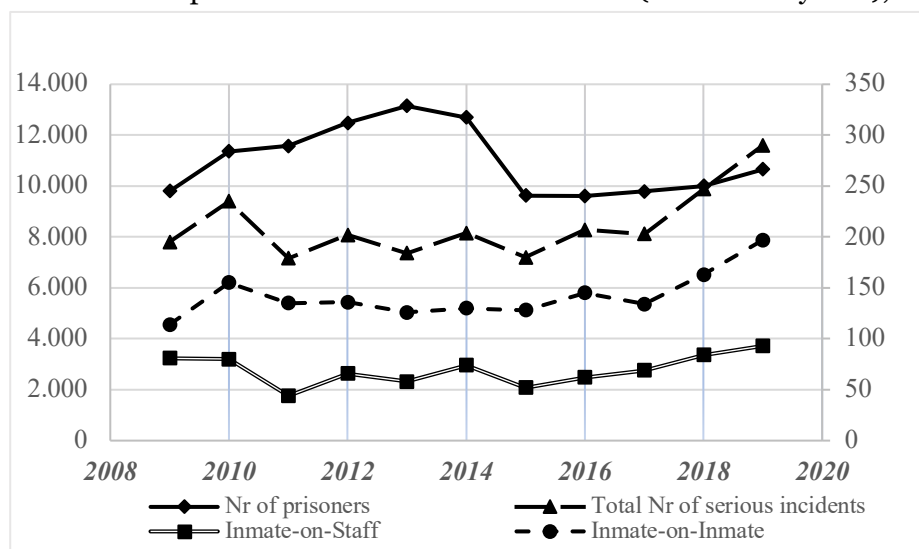


Figure 1 gives an overview of the development of violent incidents and the prison population between 2009 and 2019. It is apparent that violence among inmates and against staff shows a similar pattern, although inmate-on-inmate violence is more intense. It is also interesting that although in the period 2014–2016 the prison population decreased, the total number of incidents remained at similar levels.

Table 1. Descriptive Statistics for the Number of Incidents in Greek Prisons, 2015–2019

Year		Incidents			Incidents (per 100 Prisoners)		
		Total	Inmate-on-Inmate	Inmate-on-Staff	Total	Inmate-on-Inmate	Inmate-on-Staff
2015	Mean	5.29	3.76	1.53	2.00	1.43	.57
	Min	0	0	0	0	0	0
	Max	25.00	21.00	7.00	8.89	6.67	2.23
	St. Deviation	6.25	4.95	2.03	1.98	1.64	.68
	Median	3.50	2.00	1.00	1.72	.73	.40
	95.0% CL (Lower)	3.11	2.04	.82	1.31	.86	.33
	95.0% CL (Upper)	7.48	5.49	2.24	2.70	2.01	.81
2016	Mean	6.09	4.26	1.82	2.57	1.98	.59
	Min	0	0	0	0	0	0
	Max	34.00	24.00	19.00	11.11	11.11	6.48
	St. Deviation	8.06	5.48	4.33	2.89	2.35	1.39
	Median	3.00	2.00	.00	1.17	1.06	.00
	95.0% CL (Lower)	3.28	2.35	.31	1.56	1.16	.11
	95.0% CL (Upper)	8.90	6.18	3.33	3.58	2.80	1.08
2017	Mean	-	5.65	-	-	2.71	-
	Min	-	0	-	-	0	-
	Max	-	33.00	-	-	21.31	-
	St. Deviation	-	6.60	-	-	4.24	-
	Median	-	4.00	-	-	1.58	-
	95.0% CL (Lower)	-	3.35	-	-	1.23	-
	95.0% CL (Upper)	-	7.95	-	-	4.19	-
2018	Mean	-	6.65	-	-	2.35	-
	Min	-	0	-	-	0	-
	Max	-	54.00	-	-	14.10	-
	St. Deviation	-	11.06	-	-	3.11	-
	Median	-	3.00	-	-	1.59	-
	95.0% CL (Lower)	-	2.79	-	-	1.24	-
	95.0% CL (Upper)	-	10.51	-	-	3.45	-
2019	Mean	8.53	5.79	2.74	3.72	2.33	1.40
	Min	0	0	0	0	0	0
	Max	36.00	36.00	19.00	42.31	19.23	23.08
	St. Deviation	10.02	8.10	4.10	7.29	3.62	3.98
	Median	4.50	3.00	1.00	1.79	1.01	.44
	95.0% CL (Lower)	5.03	2.97	1.30	1.14	1.04	0
	95.0% CL (Upper)	12.03	8.62	4.17	6.31	3.61	2.81
p-value (Friedman's test)		.067	.264	.093	.066	.106	.295

Some descriptive statistics using the second dataset (2015–2019) for the number of incidents and the respective proportion per 100 inmates, separately for each year, can be found in Table 1. On average, all these variables seem to have an upward trend over the years, despite the existence of some inconsistencies. For example, the mean value of the number of inmate-on-inmate incidents in 2019 is smaller than in 2018; similarly, in 2018, the mean value of the

number of inmate-on-inmate incidents per 100 inmates is lower than in 2017. It is worth mentioning that the number of inmate-on-inmate incidents is approximately 63.5% of the total number of incidents that took place during 2015–2016 and 2019, whereas the remaining incidents (approximately 36.5 %) were perpetrated against the staff.

Figure 2a. Boxplots for the Number of Incidents (abs.) in Greek Prisons, 2015-2019

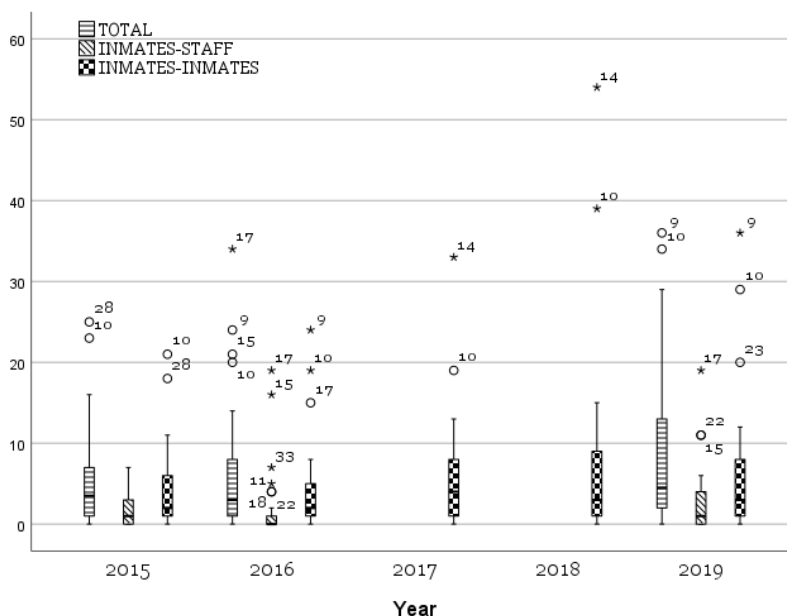
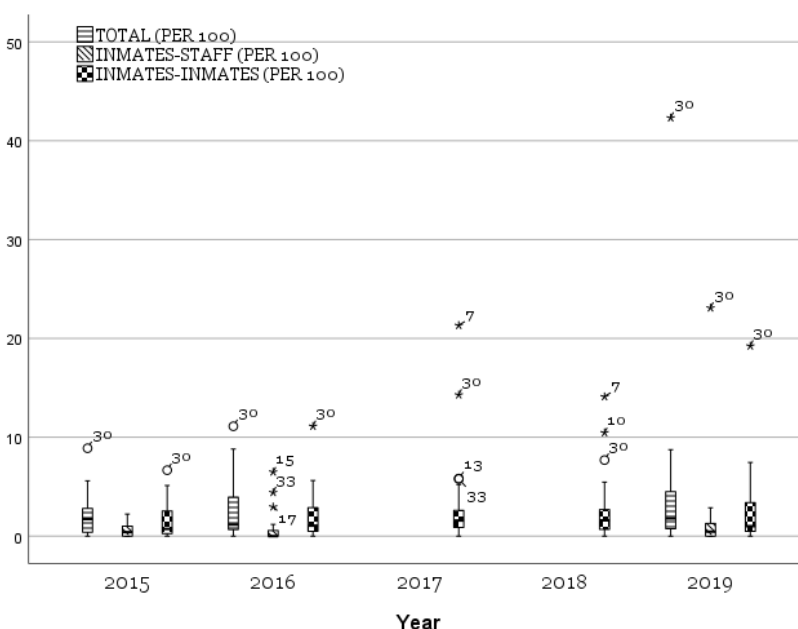


Figure 2b. Boxplots for the Number of Incidents (per 100) in Greek Prisons, 2015-2019



To examine the properties of the sample distribution of the number of incidents (inmate-on-inmate, inmate-on-staff, total and per 100 prisoners) and detect prisons that differ from the rest of the dataset, we compute the respective boxplots (Figures 2a, 2b); the numbers in these plots are the unique codes assigned to each prison. Note that some prisons consistently contribute a large number of incidents over the years. For example, prisons 9, 10 and 14 are such

institutions; prison 10 is the largest prison for females and prison 14 the largest for males (Figure 2a). However, Figure 2b also shows that prison 30 had a large proportion of incidents (per 100 inmates) compared to the rest of the institutions, especially in 2019; prisons 7 and 10 also had a relatively high number of incidents. Using the Friedman's test for assessing the statistical importance of the differences in (mean) incidents among the years (see the last row of Table 1), the results show that none of the differences are significant (at a 5 % level of significance); even so, some of these trends are marginally non-significant, as is the case for the total number of incidents.

Table 2. Pearson Correlation Coefficients of the Number of Incidents in Greek Prisons between Years

		Incidents				Incidents (per 100 Prisoners)			
		2016	2017	2018	2019	2016	2017	2018	2019
Inmate-on-Inmate	2015	.582**	.318	.392*	.504**	.511**	.642**	.609**	.628**
	2016	1	.219	.315	.858**	1	.266	.322	.803**
	2017		1	.885**	.245		1	.826**	.399*
	2018			1	.277			1	.375*
Inmate-on-Staff	2015	.627**	-	-	.432*	.470**	-	-	.492**
	2016	-	-	-	.805**	-	-	-	.056
	2017	-	-	-	-	-	-	-	-
	2018	-	-	-	-	-	-	-	-
Total	2015	.548**	-	-	.461**	.468**	-	-	.627**
	2016	-	-	-	.778**	-	-	-	.630**
	2017	-	-	-	-	-	-	-	-
	2018	-	-	-	-	-	-	-	-

**p<0.01, *p<0.05

Apart from examining the differences in mean values through the years, Table 2 includes the correlations (Pearson correlation coefficient) for the number of incidents between different years as a measure of their relationship. For example, focusing on the number of inmate-on-inmate incidents, someone can see that the correlations between successive years are of moderate size, whereas there are some cases in which these correlations are very high (e. g. the correlation equals .858 for the years 2016 and 2019 and .885 for the years 2017 and 2018). The findings are similar concerning the inmate-on-inmate incidents per 100 prisoners; namely, the correlations between successive years are of moderate size, apart from some years during which these correlations are very high (e. g. the correlation equals .803 for the years 2016 and 2019 and .826 for 2017 and 2018). There were also high correlations between 2016 and 2019 when incidents against the staff and the total number of incidents are considered (.805, and .778, respectively); the results for the incidents per 100 prisoners are quite similar, despite the negligible correlation for inmate-on-staff incidents between 2016 and 2019 (.056).

Table 3 provides us with the mean values of the number of incidents and incidents per 100 prisoners, separately for each year and type of prison (using the two categorizations described above. Reading this table, the limitations imposed by the small number of prisons in some of the categories should be considered). It is worth noting the relatively high number of incidents and incidents per 100 prisoners within the prisons for females, especially for the years 2018 and 2019. At the same time, the incidents (violence among inmates, against staff and overall violence) in prisons of general type for adults and special institutions for young males (18–25 years of age) reveal similar characteristics, despite some differences such as those found in 2017 and 2018, concerning the incidents per 100 prisoners (2017: males 1.96, young males

8.40; 2018: males 1.63, young males 6.56). Taking now into account the second categorization based on the prison regime, the types 'prison farm' and 'therapeutic' return relatively low mean values for both number of incidents and incidents per 100 prisoners, whereas the remaining categories (general and juvenile institutions) have a similar pattern; yet, the subgroup of juvenile institutions again provides relatively large values compared to the rest of the categories for the years 2017 (8.40) and 2018 (6.56) in terms of incidents per 100 prisoners.

Table 3. Mean Values for the Number of Incidents in Greek Prisons for Each Prison Type and Year

Year			Prison Type 1			Prison Type 2		
			Males (N=29)	Females (N=2)	Young Males* (N=3)	Prison Farms (N=4)	Therapeutic (N=3)	General (N=24)
2015	Incidents	Inmates-Inmates	3.24	12.50	3.00	.75	.33	4.79
		Inmates-Staff	1.69	1.00	.33	.75	1.67	1.79
		Total	4.93	13.50	3.33	1.50	2.00	6.58
	Incidents (per 100)	Inmates-Inmates	1.11	4.41	2.58	.66	.19	1.58
		Inmates-Staff	.61	.24	.44	.54	.87	.55
		Total	1.72	4.65	3.03	1.20	1.06	2.13
2016	Incidents	Inmates-Inmates	3.93	9.50	4.00	1.67	3.00	4.76
		Inmates-Staff	2.07	.50	.33	.00	2.67	2.12
		Total	6.00	10.00	4.33	1.67	5.67	6.88
	Incidents (per 100)	Inmates-Inmates	1.91	2.62	2.19	1.53	1.73	2.04
		Inmates-Staff	.66	.14	.22	.00	1.60	.59
		Total	2.57	2.76	2.41	1.53	3.33	2.62
2017	Incidents	Inmates-Inmates	5.10	12.50	6.33	1.33	5.67	6.08
		Inmates-Staff	-	-	-	-	-	-
		Total	-	-	-	-	-	-
	Incidents (per 100)	Inmates-Inmates	1.96	5.09	8.40	.54	2.87	2.27
		Inmates-Staff	-	-	-	-	-	-
		Total	-	-	-	-	-	-
2018	Incidents	Inmates-Inmates	5.59	20.50	7.67	2.33	4.67	7.28
		Inmates-Staff	-	-	-	-	-	-
		Total	-	-	-	-	-	-
	Incidents (per 100)	Inmates-Inmates	1.63	10.46	6.56	1.19	2.41	1.96
		Inmates-Staff	-	-	-	-	-	-
		Total	-	-	-	-	-	-
2019	Incidents	Inmates-Inmates	4.83	18.50	6.67	1.33	3.67	6.48
		Inmates-Staff	2.76	5.00	1.00	.67	2.67	3.20
		Total	7.59	23.50	7.67	2.00	6.33	9.68
	Incidents (per 100)	Inmates-Inmates	2.05	7.46	3.34	.65	1.48	2.52
		Inmates-Staff	1.50	1.29	.40	.27	1.18	1.69
		Total	3.55	8.74	3.74	.92	2.65	4.21

*Institutions for young males belong to both prison types (the first, according to gender and the second, according to prison regime).

The correlation (Pearson correlation coefficient) between dependent and independent variables can be found in Table 4. It seems that the population density has a negative correlation with incidents (less dense prisons have more incidents than more dense institutions), although almost none of these correlations are statistically significant (an exception is the year 2019, with a correlation equal to -.345 for inmate-on-inmate incidents per 100 prisoners). The size

of a prison as such is positively correlated with the number of incidents (some of these correlations are also statistically significant), but not with incidents per 100 prisoners, in which case the corresponding correlations are almost all negative but not significantly far from zero.

Table 4. Pearson Correlation Coefficients between the Number of Incidents, Population Density, Spatial Density, Ratio of Inmates to Staff and Prison Size

Year			Population Density	Size	Ratio of Inmates to Staff	Spatial Density
2015	Incidents	Inmates-Inmates	-.121	.292	-	.042
		Inmates-Staff	-.061	.190	-	-.069
		Total	-.116	.293	-	.011
	Incidents (per 100)	Inmates-Inmates	-.247	-.067	-	.185
		Inmates-Staff	-.101	-.117	-	.044
		Total	-.239	-.096	-	.168
		Population Density	1	-.068	-	-.544**
	Size	-.068	1	-	.101	
2016	Incidents	Inmates-Inmates	-.020	.356*	-	-.031
		Inmates-Staff	-.013	.248	-	.030
		Total	-.020	.375*	-	-.005
	Incidents (per 100)	Inmates-Inmates	-.053	-.125	-	.241
		Inmates-Staff	.080	.147	-	.119
		Total	-.005	-.031	-	.254
		Population Density	1	-.044	-	-.632**
	Size	-.044	1	-	.021	
2017	Incidents	Inmates-Inmates	.143	.815**	-	-.064
		Inmates-Staff	-	-	-	-
		Total	-	-	-	-
	Incidents (per 100)	Inmates-Inmates	-.089	-.135	-	.039
		Inmates-Staff	-	-	-	-
		Total	-	-	-	-
		Population Density	1	-.022	-	-.485**
	Size	-.022	1	-	-.039	
2018	Incidents	Inmates-Inmates	-.099	.817**	.740**	.013
		Inmates-Staff	-	-	-	-
		Total	-	-	-	-
	Incidents (per 100)	Inmates-Inmates	-.180	.053	-.010	.295
		Inmates-Staff	-	-	-	-
		Total	-	-	-	-
		Population Density	1	-.209	-.132	-.829**
	Size		1	.873**	-.028	
	Ratio of inmates to staff			1	-.131	
2019	Incidents	Inmates-Inmates	-.290	.330	.149	.168
		Inmates-Staff	-.150	.235	.055	.038
		Total	-.297	.363*	.143	.152
	Incidents (per 100)	Inmates-Inmates	-.345*	-.074	-.162	.352*
		Inmates-Staff	-.247	-.138	-.184	.262
		Total	-.306	-.112	-.181	.317
		Population Density	1	-.271	-.116	-.853**
	Size		1	.870**	.068	
	Ratio of inmates to staff			1	-.061	

**p<0.01, *p<0.05

Table 5. Linear Mixed Models with the Number of Incidents in Greek Prisons* as Dependent Variable

Incidents (Log(x+1))									
Inmate-on-Inmate				Inmate-on-Staff			Total		
Predictors	Est.	95% CI	p	Est.	95% CI	p	Est.	95% CI	p
Intercept	3.51	(1.25, 5.77)	0.003	0.78	(0.02,1.54)	0.044	1.77	(0.87,2.68)	<0.001
Ratio Inmates to Staff	-0.32	(-0.58, -0.07)	0.013						
Prison Size (z-Values)	0.90	(0.44,1.36)	<0.001	0.16	(-0.05,0.38)	0.141	0.24	(-0.06,0.53)	0.113
Year	0.07	(-0.31,0.46)	0.700	0.06	(-0.02,0.13)	0.130	0.05	(-0.03,0.13)	0.209
Spatial Density	-0.13	(-0.32,0.05)	0.161	-0.03	(-0.12,0.06)	0.482	-0.03	(-0.14,0.08)	0.581
Population Density	-0.75	(-1.76,0.27)	0.146	-0.04	(-0.31,0.24)	0.797	-0.17	(-0.50,0.15)	0.286
Random Effects									
σ^2	0.55			0.36			0.42		
τ_{00}	0.17 prison			0.27 prison			0.59 prison		
ICC	0.24			0.43			0.58		
N	33 prison			34 prison			34 prison		
Observations	66			101			101		
Marginal R ² / Conditional R ²	0.329 / 0.490			0.061 / 0.468			0.076 / 0.615		
Incidents per 100 Inmates (Log(x+1))									
Inmate-on-Inmate				Inmate-on-Staff			Total		
Predictors	Est.	95% CI	p	Est.	95% CI	p	Est.	95% CI	p
Intercept	1.43	(-0.34,3.20)	0.112	0.31	(-0.20,0.81)	0.237	0.89	(0.19,1.58)	0.013
Ratio Inmates to Staff	-0.13	(-0.33,0.08)	0.224						
Prison size (z-Values)	0.21	(-0.17,0.58)	0.274	0.002	(-0.13,0.14)	0.971	-0.04	(-0.24,0.16)	0.694
Year	0.05	(-0.24,0.34)	0.729	0.05	(-0.01,0.10)	0.089	0.05	(-0.02,0.11)	0.167
Spatial Density	0.02	(-0.13,0.16)	0.824	0.003	(-0.06,0.06)	0.913	0.04	(-0.04,0.12)	0.356
Population Density	-0.37	(-1.19,0.44)	0.362	-0.005	(-0.19,0.18)	0.958	-0.11	(-0.36,0.14)	0.387
Random Effects									
σ^2	0.31			0.18			0.29		
τ_{00}	0.15 prison			0.09 prison			0.25 prison		
ICC	0.32			0.33			0.46		
N	33 prison			34 prison			34 prison		
Observations	66			101			101		
Marginal R ² / Conditional R ²	0.111 / 0.396			0.022 / 0.341			0.058 / 0.495		

*The logarithm of incidents plus one.

The inmate/staff ratio has a positive strong correlation with the number of inmate-on-inmate incidents in 2018, but not with incidents per 100 prisoners (for which the indications support the existence of negative correlations). The spatial density seems to be positively correlated with incidents per 100 prisoners, although none of the coefficients is statistically significant except that of inmate-on-inmate incidents for 2019 (.352). The correlations of spatial density with the number of incidents are much closer to zero. It is also worth noting the high correlations between inmate/staff ratio and prison size; these correlations are equal to .873 ($p < 0.01$) for 2018 and .870 ($p < 0.01$) for 2019, indicating that as the prison size increases, the ratio of inmates to staff increases too.⁸

Although a correlation coefficient is a useful measure for assessing the relationship between two variables, it ignores the multivariate nature of our data and does not control the association between independent variables. Therefore, to overcome these issues, among others, two families of linear mixed models with dependent variables—either the number of incidents or the incidents per 100 prisoners—are considered (separately for inmate-on-inmate incidents, inmate-on-staff incidents, and total number of incidents) to estimate model parameters. The maximum likelihood estimation method was used on random intercept linear mixed models (we also considered random slope models, and according to the AIC⁹ and sample size restrictions, we conclude that the random intercept models are more appropriate for our data). It is also necessary to mention that to comply with the assumption of normally distributed residuals, the number of incidents and the incidents per 100 prisoners were transformed by taking their logarithm (after adding the value 1 to each variable, due to the presence of some zeros). Furthermore, the variable year was recoded to 0–4 for 2015–2019, respectively, whereas the size was measured using standardized values.

The role of the ratio of inmates to staff was studied only for the inmate-on-inmate incidents due to a lack of data for the rest of the cases. Therefore, from Table 5 it can be seen that only the prison size and inmate/staff ratio have a statistically significant effect on the number of inmate-on-inmate incidents (at a 5% level of significance); the positive value of the estimate for prison size means that as prison size increases (keeping the remaining values of the independent variables fixed), the number of inmate-on-inmate incidents also increases, whereas as the inmate/staff ratio increases, the number of inmate-on-inmate incidents decreases. For example, the prediction for the number of inmate-on-inmate incidents for a prison with size x standard deviations from the mean (symb., J_x) compared to a prison with $x+1$ standard deviations from the mean (symb., J_{x+1}) is given by $J_{x+1} = 2.46 * J_x + 1.46$ (keeping the remaining variables of the model fixed; note that $\exp(.90) \approx 2.46$). However, none of these effects are significant when incidents per 100 prisoners are considered. Indications of a positive correlation of the inmate/staff ratio with the number of inmate-on-inmate incidents have already been mentioned (see Table 4); however, keeping the remaining variables of the linear mixed model fixed, a negative effect of inmate/staff ratio on incidents is observed (-.32) as well as on incidents per 100 inmates (-.13) (see Table 5). Note also that prisons' heterogeneity concerning the development of incidents explains from 24% (inmate-on-inmate incidents) to 58% (total number of incidents) of the unexplained variance left from the linear (fixed) model. Moreover, the marginal and conditional r-squared values further support the fit of the models to the data and the role of the random intercepts among prisons. Although not statistically significant, the effect of the population density is negative; as the population density increases, the expected number

⁸ An increase in inmate/staff ratio means that more prisoners are supervised by fewer staff.

⁹ Akaike information criterion.

of incidents (aggregately or per 100 prisoners) decreases (keeping, of course, the remaining variables fixed). Also note that for the inmate-on-inmate incidents per 100 prisoners, the effect of population density (-.37) is the largest in terms of absolute values.

3.6 Discussion

Overall, it has become apparent that violent prison incidents and prison population growth over the last years are trending upward. Despite the remarkable decline in the prison population after 2015, the total number of violent incidents has not decreased. These results (although only for a few years) strengthen the remaining findings of the research about the ambiguous impact of population density as a sole or main factor affecting prison violence.

Concerning now the first research question, it has been found that high population density is not related with a high number of incidents (absolute number or proportion of incidents among prisoners, incidents between prisoners and staff, as well as total number of incidents among prisoners and against staff), whereas high spatial density is related to a high number of incidents *per 100 prisoners*. These findings may suggest that other variables not available in the present analysis might relate to population density and spatial density and therefore affect violence (existence of confounding factors, e. g. staff training, social characteristics of prisoners, nationality, criminal record, gang membership); it is important, also, to point that in large prisons, the hidden areas may be more difficult to surveil, compared to small prisons. Consequently, our results confirm the findings of several other studies (indicatively, Gadon et al., 2006; Gaes, 1994; MacGuire, 2018; Tartaro, 2002b) that overcrowding is by no means a causal or main factor in prison violence.

Concerning the second research question, the findings show that as prison size increases, the total number of violent incidents as an absolute value increases, but not the number of incidents per 100 prisoners. Similarly, other research has found that prison size is not necessarily correlated with prison misbehavior incidents (Lahm, 2009, p. 134; cf. MacCorkle et al., 1995). Concerning the third research question, the findings indicate a positive correlation of the inmate/staff ratio with the absolute number of incidents; namely, as the inmate/staff ratio increases, the violent incidents increase too (see also Lahm, 2009). However, assuming that no other relevant factors affect violence and thus keeping the remaining variables constant (prison size, population density, spatial density), the number of incidents decreases as the inmate/staff ratio increases.

Concerning the fourth research question about the differences in violence in the two prison types, the results show that the total number of incidents and incidents per 100 prisoners for prison type 1 were high within prisons for females, and *in spite of low population density* (53.4 %). However, international research demonstrates that in female facilities, institutional violence is at significantly lower rates than in male facilities (Harer & Langan, 2001). In Greece, prisons for women, and in particular for sentenced prisoners, are in much better condition than those for men regarding the organization of the space, the friendly environment and the programs operating in them (see also Rocheleau, 2013). There is also a separate living area for those few women who have a child with them (up to three years of age). Because no other relevant data are available about the prison environment, the sentences being served or the characteristics of the population to obtain a better understanding of the situation, we simply register this information. It cannot be excluded that the incidents in prisons for women are

registered more thoroughly than in male prisons, and they might be less intense; in any case, they are *all serious incidents*, that is, assaults against inmates (approximately 85 %) and assaults or credible threats of use of violence against the staff (approximately 15 %) on which disciplinary sanctions are imposed.

Taking now into consideration prison type 2, 'prison farms' and 'therapeutic' institutions return relatively low mean values for both number of incidents and incidents per 100 prisoners (see also Camp et al., 2003), whereas the juvenile institutions show relatively large values of incidents per 100 prisoners compared to the rest of the categories. Therefore, concerning the fifth question, it seems that the looser management of juvenile institutions does not affect young males. Indeed, in juvenile institutions, the proportion of violent incidents is higher than in prisons for male adults, as other research has shown (MacGuire, 2018, p. 3), but it is not higher than that in prisons for women.

4. Conclusions

Although the picture is complex, and some contradictory results have emerged from the present study as well, research shows that a holistic approach to prison organization that takes into account its specific environment (e. g. levels of crowding, privacy), prison's structure (e. g. architecture, security level), characteristics of the prison population (e. g. social, crime type), and is supported by the administration, staff selection and training is perhaps the most promising model for reducing prison violence (Homel & Thompson, 2005, p. 10).

Administrators and prison officers in today's Greek correctional facilities face new and old challenges that increasingly make it difficult to keep the peace inside prison walls. For decades the basic policy of prison staff and prison policy in general has been the lenient treatment of prisoners. Such examples are the frequent contact of prisoners with the outside world (visits, correspondence, telephone access, information from the press, TV privileges), free movement inside the prison and, since the mid-1990s, the generous grant of furloughs, the possibility to pursue graduate studies, the 'school(s) of second chance' operating in twelve prisons¹⁰ and the overall efforts of the entire prison staff to overcome shortages and adequately face the rapidly changing situation with good will and understanding. This is a primary reason why even citizens of other European countries prefer to serve their sentences in Greek prisons, despite overcrowding and other shortcomings of the Greek facilities. Humane treatment of all prisoners cannot be regarded *stricto sensu* as an operational best practice, but it is still the core principle, corresponding to clemency, that characterizes the justice system, despite temporary drifts away from this principle.

Prison officers sometimes feel unsupported and that they are given no time to work with prisoners. Therefore, in order for Greek prisons to be considered places of rehabilitation, in the sense of helping people to reenter society as law abiding citizens, the staff must be equipped with tools that will allow them to make the most of their potential in view of the constantly updated challenges in the modern prison environment. Staff also need to be assisted to find the right balance between control and support for prisoners.

As several experts have often stressed in the past, as well as the CPT and prison staff, prison authorities have the responsibility to protect prisoners. In particular, prison staff must be alert

¹⁰ Schools of Second Chance are public schools for adults aged 18 and over, who have not completed the nine-year compulsory education; they operate in context of Lifelong Learning.

to signs of trouble and be both resolved and properly trained to intervene. Although this depends on an adequate staff/prisoner ratio, it also requires training throughout the careers of the prison officers, prison mentoring and effective management, which requires the authorities to invest adequate resources not only in recruitment but also in training. Skilled staff are able to deal with prisoners in a decent and humane way while preserving security and good order (CPT/Inf 2010, 33, par. 96, 120). This will influence the development of constructive and positive relations between prison staff and prisoners and will render the work of prison staff far more rewarding (CPT/Inf, 2006, 41, par. 124, 125).

Using data collected by the General Secretariat from all Greek prisons, this study is one of the first attempts to examine the relevance of prisons' characteristics reflected by interpersonal violence and violence against staff. As the study has shown, neither population density nor prison size nor inmate/staff ratio have proved sufficient to explain violence in Greek penal institutions. Therefore, prisoners' social characteristics, criminal records, sentences and crime convictions, the ethnic constitution of the population, staff experience, environmental factors and the programs applied within a given time period must all be taken into consideration in order to gain an understanding of prison violence and consequently to control it.

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