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Density, Inmate Assaults, and Direct Supervision Jails

Christine Tartaro

Marissa P. Levy

*Richard Stockton College of NJ,
Pomona*

Researchers have completed several studies on the effects of density on violence in prisons and jails, but little work has been done on density's impact on direct supervision jails. Direct supervision facilities, also known as new generation jails, were created by the Federal Bureau of Prisons with the goal of reducing violence, suicide and disorder. Given the crowded conditions in most jails across the country, it is important to determine the impact, if any, that density has on the operations of these jails. The current study involves an analysis of density on assaults in nearly 150 direct supervision jails. The results indicate that neither spatial nor social density are predictors of violence in these jails. Several direct supervision jail characteristics are also included in the analysis, but they are not associated with reported assaults. The racial composition of inmates, location of the jail, and number of inmates each officer is permitted to supervise predicted assaults.

Keywords: *direct supervision jails; inmate assaults; crowding and density*

Incarceration in the United States has undergone unprecedented growth from the early 1980s until today. This has put a strain on the government at the federal, state and county levels as the respective corrections department works to accommodate the large demand for prison and jail beds. As of 2004, the United States incarcerated more than 2,267,000 persons in federal, state, territorial, and military prisons, local jails, jails in Native American territories, and juvenile facilities (Harrison & Beck, 2005a). The federal prison system was operating at 40% above its capacity that year. State prisons were operating anywhere between 9% and 115% of their capacities (Harrison & Beck, 2005a), and local jails were running, on average, at 94% of their rated capacities (Harrison & Beck, 2005b).

While it might seem encouraging that, on average, jails were operating at only 94% capacity, this is enough to generate crowded conditions inside the facilities. Klofas & Stojkovic (1992) conducted focus groups of jail administrators at an American Jail Association meeting and found that administrators considered a jail to

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be crowded once the population rises beyond 80% capacity. Their reasoning for this is that the extra room available when the jail is less than 80% full provides valuable space to separate vulnerable or troublesome inmates. Loss of that extra space makes management of difficult or special-needs inmates more challenging.

Stojkovic & Klofas (1997) explained the unique issues relating to crowding or density that jails experience. Jail population levels often depend on the actions of personnel from other parts of the criminal justice system. For example, a police sweep can result in a sudden increase of the jail population, especially if the police book the alleged offenders rather than issue citations to appear in court (Cunniff, 2002; Thompson & Mays, 1991). Decisions about when the courts should be open also directly affect jails. Counties that do not have night or weekend court must keep inmates in jail until the morning or weekday bail hearings. A judge's decision to incarcerate minor offenders rather than sentence them to probation also directly impacts the jail. Finally, when state corrections systems become overcrowded, one solution to the state's problem is to decline to accept sentenced prisoners from the county jails, thereby creating a backlog of state-sentenced inmates who remain incarcerated in those jails.

Prison and jail density have long been blamed for contributing to numerous problems within the facilities. Violence is an issue that typically arises when researchers and practitioners discuss problems related to density. Kinkade & Leone (1995) interviewed a random sample of sheriff's officers who were responsible for their county's jail operations. Of the respondents, 84% agreed with a statement that crowding resulted in increased acts of violence between inmates, and 81% agreed that it contributed to violence between inmates and staff. Empirical findings concerning the nature of the relationship between density and violence, however, have produced mixed results.

While research has been conducted on density in federal and state prisons and even local jails, little attention has been given to the impact of density on direct supervision jails. The architectural design and supervision strategy in these jails represent a marked contrast to the way that jails have traditionally been managed, so it is necessary to research the impact that high density has on these facilities. The purpose of this article is to study the impact of density on reported violence in direct supervision jails.

Defining Density

It is important to first distinguish the difference between crowding and density, as those two terms are frequently used interchangeably. Stokols (1972) explained that density is a condition that involves the amount of physical space available, while crowding is a psychosocial condition involving the individual's perception of constraints that result from limited space.

Corrections researchers tend to determine the density of a facility using one of two measures: spatial density or social density (Gaes 1985; Mullen, 1985; Sechrest, 1991; Toch 1985, 1992). Spatial density involves the number of people who are placed in a room or in a particular institution. This can be calculated a number of ways, usually with the use of either the rated, operational, or design capacity. The Bureau of Justice Statistics (BJS) (Harrison & Beck, 2005a) defines rated capacity as "the number of beds or inmates assigned by a rating official to institutions within the jurisdiction" (p. 7). Operational capacity is "the number of inmates that can be accommodated based on a facility's staff, existing programs, and services" (p. 7). Design capacity is "the number of inmates that planners or architects intended for that facility" (p. 7). Any of the three measures may be used in comparison with the actual daily population of a correctional facility. The most common definition of spatial density in the literature is one used by BJS (Harrison & Beck, 2005a). It is the number of inmates housed in a facility divided by its rated capacity.

Mullen (1985) describes social density as the amount of privacy afforded to each inmate. Toch (1985; 1992) operationalized this concept as the number of people who sleep in a room. For example, a prison or jail dormitory would have a much higher level of social density than a single-occupancy cell. This type of density has been used in research on the behavior and health of inmates who reside in different types of housing units, such as cells versus dormitories.

Density, Crowding, and Incarceration

Densely populated jails face a number of problems. Stojkovic & Klofas (1997) noted that it becomes more difficult to classify and segregate offenders, such as rival gang members, codefendants, first-time offenders, or pretrial and sentenced inmates. Mullen (1985) suggested that as institutions become more densely populated, they become strained in several areas, such as food service, sanitation facilities, air quality, availability of recreation and rehabilitation programs, availability of jobs, and quality and availability of medical care. As the facility becomes more heavily congested, inmates might be kept in their cells for more time than was originally intended (Toch, 1985). Toch also stated that increased density reduces the opportunity for positive contact between inmates and officers and staff members.

Researchers have argued that congested prison and jail environments can contribute to health problems among inmates (Bonta & Gendreau, 1994; Cox, Paulus, McCain & Schkade, 1979; McCain, Cox & Paulus, 1980; Paulus, 1988; Paulus, Cox, McCain & Chandler, 1975; Paulus & McCain, 1983). As was noted earlier, dormitories have higher social density than cells. Early research on social density in correctional settings revealed that residing in dormitories was associated with increased stress and dissatisfaction with the living environment (Cox et al., 1979; Paulus et al., 1975; Paulus & McCain, 1983). Paulus (1988) reported increased infirmary visits for inmates living in dormitories relative to those in cells, but speculated that this might

be a product of inmates in the dormitories attempting to obtain transfer to a more desirable part of the prison. Gaes (1985) found that inmates in dormitories tend to have higher clinic utilization rates and higher average blood pressure levels than other inmates. In a later publication (Gaes, 1994) he suggested, as Paulus (1988) did, that the results were likely more an example of inmates attempting to manipulate the housing assignments than of true health problems. The inmates in Gaes's (1985) study were segregated by housing unit, with higher security inmates housed in the dormitories. The cell housing was reserved for lower security and better-behaved inmates and was considered more desirable housing.

Density and Violence

Results of prior research on the impact of density on violent and aggressive behavior among people in the community and in institutions have been mixed. For example, Freedan (1975) conducted a study on crime in densely populated neighborhoods and reported that, overall, there were no differences between neighborhoods that were densely populated versus those that were not. The researcher did take a closer look at low income areas and found that the low income neighborhoods that were sparsely populated had lower crime rates than those that had the same income levels but were more densely populated. Freedan concluded that density serves to increase the importance of other environmental stimuli, thereby intensifying a person's reaction to them. More recently, Regoeczi (2003) studied residents in Toronto and measured both household and neighborhood density. The researcher found that both self-reported feelings of aggressiveness and social withdrawal appear to be coping mechanisms for people in high-density situations.

Klofas & Stojkovic (1992) conducted focus groups with jail administrators to identify their perceptions of the effects of high density on jails. From a security standpoint, the administrators voiced several concerns. Some participants said that increasing the jail population near or beyond the institution's rated capacity can result in adjustments to or near abandonment of classification systems. At the same time, it becomes more and more difficult for officers to supervise inmates when they are housed in areas intended for other purposes. This improvisation in housing brought about by crowding can interrupt or change the facility's security routines.

Research findings on the impact of density in prisons and jails are mixed. Megargee (1977), Nacci, Prather, & Teltelbaum (1977), Jan (1980) and Sechrest (1991) examined spatial density and official records of violence in prisons and jails. The studies completed by Megargee and Nacci and colleagues revealed positive relationships between spatial density and reported violence in federal prisons. Jan (1980) studied spatial density in four Florida prisons and also found crowding to be positively associated with violence. Jan, however, cautioned readers that the age of inmates is also important. Whereas the unit of analysis for the aforementioned

studies was the individual prison, Sechrest (1991) focused on individual floors in one jail. Sechrest found that while density was a significant predictor of inmate-staff violence, it was not related to inmate-inmate assaults. In this study, the floor of the jail was the strongest predictor of both types of violence, and jail floor acted as a proxy for classification.

The results of some studies have suggested that there is no link between density and levels of violence inside prisons and jails. Ekland-Olson, Barrick & Cohen (1983) found that the average age of inmates residing in Texas prisons, not density, predicted inmate misconduct. Gaes & McGuire (1985) initially reported that overcrowded institutions have higher rates of inmate-inmate and inmate-staff assaults, but in a later article, Gaes (1994) suggested that it is more likely that some other factors, such as classification, inmate drug use, inmate-staff ratio and prison programs, predict violence. Bonta & Gendreau (1994) did not find a relationship between overcrowded prisons and disruptive inmate behavior. They noted that other variables, such as inmate age and quality of prison management, might better explain violence. In a recent study of misconduct among federal prisoners, Gillespie (2005) did not find a relationship between prison density and violent misconduct.

Leger (1988) studied perceptions of social density in prison and the impact of race on these notions. The results indicated that white inmates were more likely than blacks to perceive their living situation to be crowded. Leger's explanation for this finding was that there is a possible cultural issue present, with white, rural inmates feeling more crowded in a location where they are a racial minority. Crowding was not related to violence in this study, but perceptions of crowding were linked to race, which was linked towards levels of aggression. Wooldredge (1997) also found that white inmates were more likely to perceive the prison environment as being crowded, but the author did not address violence in this study.

Franklin, Franklin & Pratt (2006) recently conducted a meta-analysis of research on correctional facility density and inmate misconduct. The analysis included sixteen studies published in peer-reviewed journals that measured density using inmate count over either rated capacity or design capacity and included data on either general inmate misconduct or inmate violence. Franklin and colleagues reported that, overall, density was a weak predictor of inmate misconduct, and that aggregate inmate age had a significant relationship to reported misconduct. The researchers suggested that administrators should work to reduce crowding in areas housing younger inmates, since crowded facilities with younger inmates tended to have more reported inmate misconduct.

Two published studies reported a negative relationship between density and assaults. Tartaro (2002b) studied reported violence in over 600 jails and found a negative relationship between reported violence and density. Walters (1998) conducted a nine-year study of assaults in prisons operated by the Federal Bureau of Prisons (BOP) and found an inverse relationship between spatial density and violence even when controlling for other variables, such as inmate age and race. He speculated

that the reason for such findings could be a negative feedback loop, meaning as the facility became more crowded, the staff utilized compensatory actions that ultimately served to reduce violence.

Podular Direct Supervision Jails

The direct supervision jail model, also known as the new generation jail, includes a physical layout and supervision strategy that is different from what is found in traditional facilities. Designed by architects with the Federal Bureau of Prisons (BOP) in the 1970s, these facilities are supposed to look and feel different from other jails. The institutions are divided into pods, which are triangular or rectangular areas. The walls of the pod are lined with cells or rooms, and the center of the pod consists of a dayroom for inmates to converge, watch television and socialize. This design differs from traditional linear jails that place their cells along long corridors. The traditional jail design has generated problems for officers, since this type of setup offers poor sight lines. Officers in these jails are faced with having to conduct intermittent supervision, meaning that they periodically walk through the hallways and look into the inmates' cells. An obvious problem with intermittent supervision is that inmates have until the officer's next patrol to assault cellmates or commit other types of infractions. The podular design facilitates officer supervision of inmates, since the sightlines with this design are greatly improved over those in the linear jails.

There are further architectural differences between traditional and new generation jails. The former tend to be furnished with vandal-resistant metal, plastic, or concrete products. The reason for this is that poor behavior is expected of the inmates. Environmental researchers, however, have cautioned that over-reliance on such materials for prevention can actually promote disruptive behavior (see Wortley, 1998, 2001, 2002). Newman (1972) studied public housing projects that contained fixtures similar to what are found in many traditional jails, and he suggested that "Instead of being provided with an environment in which they can take pride and might desire to keep up, they are provided with one that begs them to test their ability in tearing it down" (p. 105). In contrast to this type of setting, direct supervision facilities contain "normalized" environments that contain furniture that one would see in a college dormitory. New generation jails use wood and fabric chairs, wood bunk beds, porcelain sinks and toilet seats, and carpeting or other materials are used on the floors and walls to reduce the noise and echoes in the living areas. This arrangement for living areas is expected to generate positive expectations for inmates and provide incentive for good behavior. Poor behavior may be punished by placement in a less desirable part of the institution.

The creators of the direct supervision model also intended for the inmates to have their own cells or rooms (Nelson & Davis, 1995). Single cells or rooms provide

inmates with privacy and a place to be free from assaults from other inmates. The original designers intended for inmates to have single cells where they could be alone when they desired privacy and then have access to socialization in the dayrooms.

The individual pods within the facility are supposed to operate as semiautonomous units within the jail. This approach, known as unit management, has the potential to improve communication between inmates and staff as well as foster better needs assessment and program planning for the inmates (Levinson, 1999). Delivery of services and programs is easier for staff if the services, such as recreation or counseling, are offered right on each pod.

The supervision style used by officers in new generation jails is called direct supervision. In traditional facilities, officers and inmates are typically separated by a physical barrier, such as bars or Plexiglas. Officers in new generation jails, however, spend most or all of their shifts inside the dayrooms with the inmates. Officers in traditional jails react to inmate assaults by calling for backup and entering that particular part of the jail to regain control of the situation. In direct supervision jails, officers are expected to be proactive and defuse situations in the pods before they escalate to violence. In order to do this, officers need extensive communication skills training.

Most evaluations of direct supervision jails have been encouraging. Researchers and practitioners have reported reductions in inmate-inmate violence (Bayens, Williams & Smykla, 1997a, 1997b; Jackson, 1992; Nelson, 1986; Senese, 1997; Wener, Frazier & Farbstein, 1993) and assaults against jail officers and staff members (Bayens, Williams & Smykla, 1997a, 1997b; Nelson, 1986; Wener, Frazier & Farbstein, 1993). Inmates have also reported having more positive attitudes about the officers than inmates in more traditional facilities, and direct supervision officers have reported feeling less hostile towards the inmates (Yocum, Anderson, DaVigo & Lee, 2006).

Little has been said about the impact of high spatial and social density on the operations of these institutions. Supporters of the direct supervision model have suggested that the non-institutional design of the facility is supposed to provide limited assistance in reducing inmate stress associated with environmental irritants typically found in jails, including noise, lack of privacy, and crowding (Zupan & Stohr-Gillmore, 1988). The jail administrators who participated in the focus groups run by Klofas & Stojkovic (1992) were in agreement that new generation jails provide more flexibility for dealing with crowding by improvising with housing arrangements and by offering better supervision of inmates. These jails, however, are not immune to the effects of crowding. Farbstein, Liebert & Sigurdson (1996) studied several direct supervision jails and found that some of these jails did have problems, including crowding. The researchers warned, "Thus, as robust as direct supervision might be, it cannot be treated with indifference or allowed to degenerate too far without serious consequences" (p. 4). The problem is that increased density interferes with

several characteristics of new generation jails, such as officers' ability to work closely with inmates (Farbstein & Wener, 1989), single cell use, and access to goods and services.

Bayens, Williams & Smykla (1997a, 1997b) studied a single jail system as it moved from a traditional linear intermittent jail to a podular direct supervision facility. The new facility was less violent than the traditional institution, but as the average daily population exceeded the facility's rated capacity by 12% in the fourth year and 26% in the fifth year, the number of reported minor rule infractions increased 116%. This was a unique study in that it specifically addressed the issue of density in direct supervision jails. Since it involved only one facility, the authors recommended additional research in this area.

As was noted earlier, Tartaro (2002b) did study density and reported violence in over 600 jails. One of the variables included in the regression models was jail type, thereby allowing for a comparison of direct supervision jails with other facilities. Jail design was not a significant predictor of reported violence in this study. The dataset only included approximately 65 direct supervision facilities, so the author could not conduct a separate multivariate analysis with just these facilities to determine which characteristics of the direct supervision model are significant predictors of assault. The dataset for the current study includes a larger sample size ($n = 150$), so such an analysis is possible.

Hypotheses

Based on the work of Klofas & Stojkovic (1992) and Kinkade & Leone (1995), it is apparent that jail practitioners view high jail density as problematic for safe and efficient facility operations. Specifically, the administrators who participated in the Kinkade & Leone interviews perceived density to be a predictor of inmate-inmate and inmate-staff violence. The purpose of this study is to assess the relationship, if any, between density and reported assaults in direct supervision jails.

Past research (Tartaro 2006, 2002a; Zupan & Stohr-Gillmore, 1988) has revealed that not all decision-makers involved in the construction and operation of direct supervision jails adopt the aforementioned design, training and supervision characteristics. Also of interest for this study is whether any of the characteristics of direct supervision jails predict violence. The following hypotheses will be tested:

Hypothesis 1: Higher levels of spatial density will be associated with higher levels of reported inmate-inmate assaults.

Hypothesis 2: Higher levels of spatial density will be associated with higher levels of reported inmate-staff assaults.

Hypothesis 3: Characteristics of direct supervision jails, such as communication skills training, more comfortable living environments, and services concentrated on the pod, will be associated with lower levels of assaults.

Methodology

Surveys were sent to almost every jail listed in the National Institute of Corrections' (NIC) *2001 Directory of Direct Supervision Jails* (Harding, Linke, Van Court, White & Clem, 2001). The NIC identified two elements of direct supervision when determining which jails to include in its directory. First, the housing design must be podular, meaning "Inmates' cells are arranged around a common area, usually a dayroom. There is no secure control booth for the supervising officer, and there are no physical barriers between the officer and the inmates. The officer may have a desk or table for paperwork, but it is in the open dayroom area (p. v). Second, the inmate management style is direct supervision, meaning "An officer is stationed in the pod with the inmates. The officer moves about the pod and interacts with the inmates to manage their behavior" (p. v). The NIC authors did note that "NIC staff did not visit any of these jails for purposes of developing this directory, and by publishing this directory NIC is in no way certifying or evaluating them as direct supervision jails or otherwise" (p. v).

Two hundred and ninety-two jails were listed in the directory. Two listings were duplicates, and one of the facilities had closed since the directory was published. Five facilities were not sent surveys, since they were specifically identified in their names as being work-release centers. Surveys were sent to the remaining 284 jails. Respondents from two facilities indicated that their jails were not yet operational, six respondents indicated that their jails were not direct supervision facilities, and one respondent filled out the survey but reported that less than 10% of the institution's beds were in a direct supervision area. This reduced the pool of eligible responding jails to 275. Of those, 150 jails responded, providing a 55% response rate.

Mail surveys are beneficial in that they allow the researchers to cover a wide geographic area. A drawback to using such a data collection method is that the researchers do not have the benefit of actually seeing the jails. Thus, the researchers had to rely on the respondents to describe some physical aspects of the jail. Observations of each facility would have provided a deeper understanding of the layout and the management styles in each institution. Such a data collection method, however, would have been financially prohibitive.

Dependent Variables

Many of the jails were not entirely direct supervision facilities, meaning that there were cell-blocks or wings that were designed and managed in a more traditional fashion. Respondents were asked about the number of inmate-inmate and inmate-staff assaults in the direct supervision portion of their jails that were serious enough to result in a disciplinary write-up between January 1 and December 31, 2003. The results are displayed in Table 1. Both dependent variables had non-normal

Table 1
Violence and Density Variables

	N	Mean	Median	SD
Dependent variables				
Inmate-inmate assaults	126	63.67	26.50	120.58
Inmate-inmate assaults (transformed)	126	3.19	3.31	1.45
Inmate-staff assaults	131	10.19	3.00	24.94
Inmate-staff assaults (transformed)	131	1.37	1.39	1.29
Density				
Spatial density (inmate count/number of direct supervision beds)	145	106.78	96.46	49.60
Social density				
Alone	140	29.89	9.50	36.04
Bunked	139	43.20	29.00	41.11
Dorms	140	26.64	10.00	34.65

distributions, thereby violating one of the assumptions for ordinary least squares (OLS) regression. Both variables were transformed by taking the natural log, and this satisfactorily addressed the problems with the distributions.

Density

This study involves two measures of density: spatial and social. Spatial density was calculated by dividing the inmate count in the direct supervision portion of the jail by the number of direct supervision beds in the jail. On average, the direct supervision sections of the responding jails were operating at 107% of their capacity (Table 1). For social density, the survey included questions about the percentage of inmates in the direct supervision portion of the jail that were housed alone in cells or rooms, double- or triple-bunked in cells or rooms, or housed in dormitories. The most frequently used form of housing was the double- or triple-bunked rooms (mean = 43.20%), followed by 30% of inmates housed alone and 27% of inmates housed in dormitories.

Facility Characteristics

The average number of inmates in the responding jails was 630 (SD = 693.3) (Table 2). The non-normality of the distribution was addressed by natural log transformation of the variable, and this resulted in a normal distribution. The NIC Direct Supervision Jails Directory included information about the maximum number of inmates that the facility allows each officer to supervise. The average response was 59 inmates per officer. This information is in line with the fact that the average large pod in each facility held 66 inmates, and pods in new generation jails are intended

Table 2
Facility, Direct Supervision and Inmate Variables

	N	%	Mean	Median	SD
Facility characteristics					
Number of inmates	145		629.90	427.00	693.27
Number of inmates (transformed)	145		5.96	6.06	1.04
Maximum number of inmates per officer	144		59.32	60.00	15.47
Average length of stay for detainees (in days)	132		55.21	27.00	79.96
Transformed length of stay	132		3.45	3.33	1.02
Area surrounding the jail					
Urban area	79	52.7			
Rural/suburban area	63	42.0			
Missing information	8	5.3			
Direct supervision characteristics					
% of officers' shift spent in inmate living areas	142		70.42	80.00	28.96
Communication skills training offered in officers' first year					
More than two days (1)	57	38.0			
Two days or less (0)	87	58.0			
Missing information	6	4.0			
Type of furniture in living areas					
Vandal resistant or "other" (0)	110	73.3			
Wood or fabric or combination (1)	39	26.0			
Missing information	1	0.7			
Inmates control lights in cells					
Yes (1)	66	44.0			
No (0)	75	50.0			
Missing information	9	6.0			
Noise reduction techniques in use					
Yes (1)	104	69.3			
No (0)	44	29.3			
Missing information	2	1.3			
Enter and leave their cells during most times of the day					
Yes (1)	121	80.7			
No (0)	23	15.3			
Missing information	6	4.0			
Access to TV in the living areas during most times of the day	146	97.3			
Continuous phone access during waking hours	137	91.3			
Living areas in the jail are air conditioned	145	96.7			
Inmates have access to showers throughout the day	141	94.0			
Concentration of services on the pod	142	-	1.71	1.00	1.79
Facility-level inmate characteristics					
% male inmates	146		87.14	88.00	9.23
% white inmates	126		54.28	55.00	20.37
% inmates under 18	108		2.01	0.00	5.16
% inmates under 18 (transformed)	108		0.61	0.00	0.82
% inmates charged with a felony	95		59.87	60.00	22.53

to be run by one officer. The average length of stay for inmates in the jail was 55 days. There were some statistical outliers here, with four jails reporting an average length of stay of one to two years for their inmates. A natural log transformation was conducted to obtain a normal distribution for the average length of stay variable. A slight majority of responding jails (53%) were located in an urban area, while the rest were in rural or suburban settings.

Direct Supervision Jail Characteristics

The survey included two variables relating to officer supervision and interaction with inmates. Respondents were asked about the average percentage of their shift that officers actually spend in the living areas with the inmates. The mean response was 70% ($SD = 28.96$). Another question addressed the amount of communication skills training offered to incoming officers. Respondents were given several answer options, including no communication skills training, one to eight hours, nine to sixteen hours, seventeen to twenty-four hours, twenty-five to forty hours, and forty-one hours or more. For this analysis, a dichotomous variable was created with over two eight-hour work days of communication skills training coded as "1" and two days of training or less coded as "0".¹ Thirty-eight percent of the jails offered more than two days of communication skills training to incoming officers.

The survey included several questions about the jails' physical environment. One question included the type of furnishings and fixtures used inside the jails' living areas. Seventy-three percent of respondents reported using vandal-resistant plastic, metal or concrete furnishings, while 26% reported having wood or fabric furnishings or a combination of the vandal-resistant and non-institutional furnishings. Forty-four percent of responding jails allowed inmates to control the lights in their cells, 69% took steps to reduce noise and echoes in the living areas, 81% allowed inmates to enter and exit their cells throughout most of the day. Respondents also indicated that inmates have access to television in the living areas during most of the day in all but four responding jails. Ninety-one percent of jails provide inmates with continuous telephone access during waking hours, 97% of responding jails have air conditioned living areas, and 94% of jails offer inmates access to showers throughout most of the day. Since there was little variability amongst the responding jails for the television access, phone access, air conditioning and shower access variables, those variables were excluded from the analysis.

The survey included questions about whether the jails offer inmates several services, and if so, whether those services are offered on the pod-level. The services included work, recreation, religious services, counseling, drug counseling, and education. For each of those services offered on the pod, the jail was given one point. For the concentration of services variable, jails received a total score between zero and six. Chronbach's alpha for this variable was .799, indicating high reliability.

Jail-level Inmate Variables

Four jail-level inmate variables were included in the analysis: percentage of male inmates, percentage of white inmates, percentage of inmates under eighteen years of age, and the percentage of inmates charged with a felony. Eighty-seven percent of the inmates housed in the direct supervision portion of the jails were male. According to the BJS (Harrison & Beck, 2005a), 87% of the jail population nationwide is male. Whites were slightly over-represented in the current study, with 54% of the inmates in the responding jails reported as White, compared to 44% nationwide. The direct supervision portion of the surveyed jails held an average of 2% inmates under the age of 18, while jails nationwide held an average of 1% of juvenile inmates in adult jails. Sixty percent of inmates in the direct supervision areas of the participating jails were charged with a felony.

Data Analysis

The data analysis consisted of two parts. First, a correlational analysis was conducted with the aforementioned independent and dependent variables. Second, multiple regression models were developed with the independent variables that were found to be correlated with inmate-inmate and inmate-staff violence. As was mentioned earlier, several variables were not normally distributed and therefore natural log transformations were performed. The transformed variables were used in the bivariate and multivariate analyses.

Results

Bivariate Analysis

The results of the bivariate correlations are displayed in Table 3. Our measure of spatial density (number of inmates in the direct supervision part of the jail / number of beds in the direct supervision part of the jail) was not correlated with either inmate-inmate or inmate-staff assaults. Two measures of social density—percentage of inmates housed alone and percentage of inmates housed in double- or triple-bunked cells—were associated with reported inmate-inmate assaults. The percentage of inmates housed alone was inversely related to inmate-inmate assaults, while the percentage of double- or triple-bunked inmates was positively related to assaults against inmates. No support was found for the hypotheses that the direct supervision variables would be associated with assaults in the jails. Not one of the direct supervision variables here was correlated with either reported inmate-inmate or inmate-staff assaults.

Four of the facility characteristics variables were correlated with assaults against both inmates and staff members. The maximum number of inmates per officer was

Table 3
Bivariate Correlations

	1	2	3	4	5	6	7	8
1. Inmate-inmate assaults	1							
2. Inmate-staff assaults	0.689**	1						
3. Spatial Density	0.023	-0.046	1					
4. % housed alone	-0.203*	-0.136	-0.046	1				
5. % double- or triple-bunked	0.209*	0.070	-0.020	-0.597**	1			
6. % housed in dorms	-0.032	0.044	0.054	-0.334**	-0.557**	1		
7. % circulate	-0.122	-0.136	-0.004	-0.025	0.204*	-0.205*	1	
8. Amount of communication skills training	0.008	0.102	0.091	-0.032	0.006	0.031	-0.144	1
9. Non-institutional furniture	0.020	0.060	-0.042	0.031	-0.007	-0.045	-0.119	-0.041
10. Inmates control lights in cells	0.156	0.138	0.006	0.127	0.184*	-0.315**	0.010	-0.051
11. Noise reduction	-0.098	-0.091	0.109	0.129	-0.010	-0.109	-0.038	-0.015
12. Concentrate services	0.095	0.136	0.078	0.179*	-0.115	-0.049	0.054	0.002
13. Inmate count	0.693**	0.656**	0.109	-0.235**	0.080	0.145	-0.036	-0.047
14. Max. # inmates/officer	0.419**	0.259**	-0.002	-0.321**	0.199*	0.108	0.035	-0.104
15. Average length of stay	0.052	-0.049	0.165	-0.263**	0.239**	-0.027	0.026	0.087
16. Urban = 1; suburban/rural = 0	0.316**	0.272**	0.070	-0.012	-0.018	0.027	-0.151	-0.071
17. % male inmates	0.152	-0.077	-0.022	.0136	0.078	-0.235**	0.080	0.139
18. % white inmates	-0.400**	-0.222*	-0.020	-0.003	-0.034	0.047	0.089	0.036
19. % inmates under 18	0.140	0.181	0.182	0.159	-0.047	-0.097	0.226*	0.228*
20. % inmates charged w/ a felony	0.105	0.103	-0.014	-0.137	0.212*	-0.075	-0.099	-0.006

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

associated with both reported inmate-inmate and inmate-staff assaults ($r = .419$ and $r = .259$ respectively). Naturally, the number of inmates in the direct supervision parts of the jail is correlated with the number of assaults, since more inmates in the jail means more potential assailants. The area where the jail is located is also significant, with jails in urban areas experiencing more assaults against inmates and staff than those in rural or suburban areas. The only jail-level inmate variable that was correlated with violence was the percentage of white inmates in the direct supervision areas. This variable was inversely related to both types of assault.

Multivariate Analysis

The three measures of social density were highly correlated with each other, as is evident in Table 3. In an effort to avoid problems with multicollinearity, only one measure of social density, percentage of inmates housed alone, was included in the multivariate models. There was also a high level of correlation ($r = .501$) between the number of inmates in the direct supervision portion of the jail and the maximum

Table 3

9	10	11	12	13	14	15	16	17	18	19	20
1											
0.216*	1										
0.174*	0.260**	1									
-0.006	0.172*	0.000	1								
0.052	0.096	-0.069	0.158	1							
0.272*	0.099	0.172*	0.105	0.501**	1						
-0.075	-0.234**	-0.257**	-0.169	0.061	0.049	1					
-0.055	0.008	-0.136	0.084	0.251**	0.007	-0.118	1				
-0.167*	-0.015	0.027	-0.083	-0.018	-0.083	0.132	-0.125	1			
-0.035	-0.187*	-0.022	-0.045	-0.431**	-0.243**	-0.213*	-0.180	-0.073	1		
-0.002	0.242*	0.090	-0.069	0.115	-0.139	0.147	0.040	0.101	-0.042	1	
-0.106	0.135	-0.065	0.224*	0.143	0.103	-0.048	0.172	-0.056	-0.049	0.042	1

number of inmates per officer. Since the two variables could not be included in the multivariate models together, the number of inmates was excluded.

The two remaining density variables—spatial density and percentage of inmates housed alone—as well as the significant variables from the bivariate analysis were used to develop multivariate OLS models. Preliminary regression analysis was conducted to calculate Mahalanobis distance to detect multivariate outliers. Mahalanobis distance is defined as the distance of a case from the centroid of the remaining cases where the centroid is the point created by the means of all the variables (Mertler & Vannatta, 2002). Two Mahalanobis variables were created (one for inmate-inmate assaults and one for inmate-staff assaults). For the inmate-inmate assault variable, there were four outliers, and those cases were excluded from the multivariate analysis with that dependent variable. There were seven outliers identified in the variable created for inmate-staff assaults, so those cases were excluded. Collinearity diagnostics were also run for the regression models, and the variance inflation factor statistics were low, indicating no problems with multicollinearity.

Table 4
First OLS Model for Inmate-Inmate Assault

	B	SE	beta	T	Sig.
(Constant)	2.430	.891		2.73	.008
Spatial density	-0.003	.004	-.063	-0.74	.459
% inmates housed alone	-0.006	.003	-.158	-1.86	.066
Maximum number of inmates per officer	0.038	.010	.349	3.77	.000
Area surrounding jails (1 = urban; 0 = rural/suburban)	0.682	.246	.233	2.77	.007
% white inmates	-0.023	.007	-.303	-3.29	.001
R ² = .417 p < .001					

The first OLS model with inmate-inmate assaults as the dependent variable is displayed in Table 4. Neither of the density variables were significant when included in the multivariate model. The maximum number of inmates per officer remained a positive, significant predictor of reported inmate-inmate assaults. The location of the jail was also significant, with jails in urban areas reporting more violence than jails in suburban or rural settings. The percentage of white inmates was inversely related to reported inmate-inmate violence. The overall model was significant at the .001 level ($p < .001$) and explained 42% of the variance in inmate-inmate assaults.

Since the results of the bivariate analysis indicated that there was a strong relationship between reported inmate-inmate assaults and inmate-staff assaults, the second OLS model included inmate-staff assaults as an independent variable (Table 5). Following the addition of the inmate-staff violence variable, the area where the jail was located was no longer significant. The maximum number of inmates per officer remained a significant and positive predictor of inmate-inmate violence. The percentage of white inmates also remained significant and inversely related to reported

Table 5
Second OLS Model for Inmate-Inmate Assault

	B	SE	beta	T	Sig.
(Constant)	2.073	.751		2.76	.007
Spatial density	-0.002	.003	-.040	-0.57	.570
% inmates housed alone	-0.004	.003	-.097	-1.35	.182
Maximum number of inmates per officer	0.026	.009	.232	2.89	.005
Area surrounding jails (1 = urban; 0 = rural/suburban)	0.327	.215	.112	1.52	.132
% white inmates	-0.017	.006	-.227	-2.90	.005
Inmate-staff assaults	0.540	.089	.475	6.09	.000
R ² = .593 p < .001					

Table 6
First OLS Model for Inmate-Staff Assault

	B	SE	beta	T	Sig.
(Constant)	.108	.944		0.12	.909
Spatial density	.000	.003	-.017	-0.17	.864
% inmates housed alone	-.004	.004	-.101	-0.97	.334
Maximum number of inmates per officer	.025	.011	.244	2.26	.027
Area surrounding jails (1 = urban; 0 = rural/suburban)	.762	.261	.295	2.92	.005
% white inmates	-.006	.007	-.088	-0.85	.400
	R ² = .184	p = .004			

Table 7
Second OLS Model for Inmate-Staff Assault

	B	SE	beta	T	Sig.
(Constant)	-.927	.848		-1.09	.278
Spatial density	-.002	.002	-.075	-0.88	.382
% inmates housed alone	.000	.003	-.005	-0.05	.959
Maximum number of inmates per officer	.005	.010	.050	0.52	.608
Area surrounding jails (1 = urban; 0 = rural/suburban)	.318	.230	.123	1.39	.170
% white inmates	.005	.006	.070	0.75	.455
Inmate-inmate assaults	.575	.094	.634	6.14	.000
	R ² = .439	p < .001			

inmate-inmate violence. The strongest predictor, however, was reported inmate-staff assaults. The model explained 59% of the variance in reported inmate-inmate violence, and the model was significant ($p < .001$).

The OLS models with reported inmate-staff assaults as the dependent variable are displayed in Tables 6 and 7. Two variables in the first model were significant—the maximum number of inmates per officer and the location of the jail. Jails located in urban areas reported higher levels of inmate-staff violence than those in the rural or suburban areas. Spatial density, social density, and the percentage of white inmates were not predictors of inmate-staff violence. The model was significant at the .05 level ($p < .001$) and explained 18% of the variance in inmate-staff assaults.

The second model, with reported inmate-inmate assaults as an independent variable, produced different results. After the inclusion of inmate-inmate assaults, the location of the jail was no longer significant. The only significant variable in this model was inmate-inmate assaults, which had a positive association with inmate-staff assaults. The model was significant at the .001 level and explained 44% of the variance.

Discussion

The measure of spatial density (inmates housed in the direct supervision part of the jail / direct supervision beds) was not correlated with the number of reported assaults against inmates or staff members, thus there was no support for the first hypothesis. The second hypothesis involved the relationship between social density and assaults. While the measures of social density were correlated with inmate-inmate assaults in the bivariate analysis, they did not remain significant when included in the multivariate models. This paper adds to the literature that suggests little impact of density on reported violence in prisons and jails. Practitioners frequently express their concern about the impact of high density on the operation of their facilities. At the facility-level, these concerns are not materializing in the form of higher levels of reported violence. One possibility is that this reflects a problem with research that relies on official records. If officers in crowded facilities are burdened with more work due to the increase in inmates, perhaps they are avoiding the paperwork by dealing with assaults informally. Another possibility is that while increased density might put a strain on the facility itself, it either has no direct impact on violence, or the jail administrators are finding a way to prevent violence from escalating as the jail population increases.

To measure hypothesis 3, several characteristics of direct supervision jails were included in this analysis, but none were associated with either measure of violence used in this study. Based on the results of this analysis, it appears that other variables, such as the location of the jail, the racial composition of the inmates, and the maximum number of inmates supervised by each officer better explain variations in levels of reported violence in these institutions. It is important to note, however, that while the characteristics of new generation jails were not associated with reduced violence, they were not associated with increased violence either. This is an interesting finding, considering that critics of the direct supervision jail model have suggested that placing officers in the living areas with the inmates would put the officers in danger.

A concern among practitioners has been that the use of noninstitutional furniture and fixtures would provide inmates with multiple sources of weapons, since the furniture is less likely to be bolted to the floor and it is generally easier to break the normalized materials to make weapons. The jails that reported having normalized living areas were no more likely than the other facilities to report high levels of violence. Additionally, the lack of a relationship between the amount of time officers spend in the living areas with the inmates and reported inmate-staff assaults indicates that this approach to supervision has not put officers in more danger than in indirect or intermittent supervision institutions.

The findings of the current study indicate that higher proportions of white inmates were associated with fewer assaults against inmates, and this relationship

remained significant when controlling for other variables. While the proportion of white inmates was negatively correlated with inmate-staff assaults in the bivariate analysis, the relationship did not remain statistically significant in the multivariate models. Our findings are contrary to Gaes & McGuire's (1985) study, in which they reported that higher proportions of *non-white* inmates were associated with fewer inmate-inmate assaults and more violence against staff members. It is possible that the more racially homogeneous jails housing large proportions of white inmates in this study experience fewer inmate-inmate assaults due to less cultural and racial conflict between the inmates.

Of course, the finding on race and violence among inmates presents a dilemma to corrections administrators. The California Department of Corrections had an unwritten policy that called for housing inmates with others of the same race for the first sixty days that the inmate was in a new facility (see *Johnson v. California*, 2005). The department attempted to justify this practice to the United States Supreme Court by arguing that racially motivated assaults had become so problematic in the state prisons that segregation was the most effective way to prevent assaults. The Supreme Court did not accept this defense and ordered the state to cease their segregation practices, since it violated the 14th Amendment. While the results of the current analysis suggest that more racially homogeneous jails tend to experience less reported violence, the Supreme Court was clear in its decision that separating inmates by race is unacceptable.

Some of the impact of race on reported violence can also be explained by considering the location of the jail. There was a significant correlation between the jail location and the proportion of white inmates. Suburban and rural jails tended to house more white inmates. It is possible that urban jails might have to deal with more inmates who are rival gang members. According to the Bureau of Justice Statistics (Harrell, 2005), violent crime victims in urban areas are more likely to identify their assailants as gang members than victims in suburban or rural areas. It is possible that the urban jails have the additional burden of dealing with the security issues associated with housing gang members. Further research should examine this possible link, since few solid conclusions can be made based on the current analysis.

The best predictor of inmate-inmate violence in this study was inmate-staff violence, and vice versa. It is possible that some of this is a matter of some facilities having stricter reporting policies for violence than others. A facility that is quick to write up inmates for assaulting each other, for example, might also be quick to write up infractions that involve physical force against staff members. It is also likely that jails that must deal with inmates having the motive and opportunity to attack each other will face the additional security issue of inmates attacking staff members. In a recent study of violence in Texas jails, Kellar & Wang (2005) found that jails housing higher proportions of maximum security inmates were more likely to report both inmate-inmate and inmate-staff assaults.

Suggestions for Future Research

There are several limitations to this analysis that must be considered, especially for those interested in researching this topic in the future. This study involved aggregate jail data, but Stojkovic & Klofas (1997) cautioned that different parts of the jail might be more densely populated than others, so different areas might experience different effects related to density. Sechrest's (1991) research also highlighted the importance of disaggregated statistics. Future studies would benefit from collecting disaggregated data.

Researchers wishing to study jail violence in the future should look to obtain more specific information about the inmates housed in each facility, such as the percentage of inmates who are classified as maximum security or information about gang membership among inmates. These variables are potentially important predictors of violence in jails. There are also important jail characteristics that were not included in this article. For example, multi-tiered pods appear to make supervision of inmates more difficult for officers in direct supervision jails (Parrish, 2000). Researchers should collect data on the number of floors that each direct supervision officer is responsible for supervising.

The limitations to using official records in criminal justice research are well-documented. The researchers specifically requested assaults that were serious enough to result in a disciplinary write-up, but the threshold for a write-up may vary from institution to institution. Future studies would benefit from the use of self-reported data from inmates, but there are also limitations with that type of data collection that need to be considered. Collection of self-reported data is also more difficult and would likely have to be limited to a few facilities.

Note

1. The researchers examined the relationship between this dichotomous variable and the dependent variables and then between the communication skills training data broken up by several categories (1–8 hours, 9–16, 17–24, 25–40 and over 40 hours) and the dependent variables. The relationship remained the same regardless of how the data were grouped. Only the bivariate analysis results between the dichotomous training variable and the dependent variable are displayed in the correlation table.

References

- Bayens, G. J., Williams, J. J., & Smykla, J. O. (1997a). Jail type makes difference: evaluating the transition from a traditional to a podular, direct supervision jail across ten years. *American Jails*, 11(2), 32–39.
- Bayens, G. J., Williams, J. J., & Smykla, J. O. (1997b). Jail type and inmate behavior: a longitudinal analysis. *Federal probation*, 61(3), 54–62.
- Bonta, J., & Gendreau, P. (1994). Reexamining the cruel and unusual punishment of prison life. In M. C. Braswell, R. H. Montgomery Jr., & L. Lombardo (Eds.), *Prison violence in America*. (2nd ed., pp. 39–68). Cincinnati, OH: Anderson Publishing Company.

- Cox, V. C., Paulus, P. B., McCain, G., & Schkade, J. K. (1979). Field research on the effects of crowding in prisons and on offshore drilling platforms. In J. R. Aiello & A. Baum (Eds.), *Residential crowding and design* (pp. 95–106). New York: Plenum.
- Cunniff, M. A. (2002). *Jail crowding: Understanding population dynamics*. Washington, DC: U.S. Department of Justice, National Institute of Corrections.
- Ekland-Olson, S., Barrick, D., & Cohen, L. E. (1983). Prison overcrowding and disciplinary problems: an analysis of the Texas prison system. *Journal of Applied Behavioral Science*, 19, 163–176.
- Farbstein, J., Liebert, D., & Sigurdson, H. (1996). *Audits of podular direct-supervision jails*. Washington, DC: U.S. Department of Justice, National Institute of Corrections.
- Farbstein, J., & Wener, R. (1989). *A comparison of "direct" and "indirect" supervision correctional facilities*. Washington, DC: U.S. Department of Justice, National Institute of Corrections.
- Franklin, T. W., Franklin, C. A., & Pratt, T. C. (2006). Examining the empirical relationship between prison crowding and inmate misconduct: a meta-analysis of conflicting research results. *Journal of Criminal Justice*, 34, 401–412.
- Freedan, J. L. (1975). *Crowding and behavior*. New York: The Viking Press.
- Gaes, G. G. (1985). The effects of overcrowding in prison. In M. Tonry & N. Morris (Eds.), *Crime and justice*, vol. 6, 95–146. Chicago: University of Chicago Press.
- Gaes, G. G. (1994). Prison crowding research reexamined. *The Prison Journal*, 74(3), 329–363.
- Gaes, G. G., & McGuire, W. J. (1985). Prison violence: the contribution of crowding versus other determinants of prison assault rates. *Journal of Research in Crime and Delinquency*, 22(1), 41–65.
- Gillespie, W. (2005). A multilevel model of drug abuse inside prison. *The Prison Journal*, 85(2), 223–246.
- Harding, B. G., Linke, L., Van Court, M., White, J., & Clem, C. (2001). *2001 Directory of direct supervision jails*. Washington, DC: U.S. Department of Justice, National Institute of Corrections.
- Harrell, E. (2005). *Violence by gang members, 1993–2003*. Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics.
- Harrison, P. M., & Beck, A. J. (2005a). *Prison and jail inmates at midyear 2004*. Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics.
- Harrison, P. M., & Beck, A. J. (2005b). *Prisoners in 2004*. Washington, DC: U.S. Department of Justice, Bureau of Justice Statistics.
- Jackson, P. G. (1992). *Detention in transition: Sonoma county's new generation jail*. Washington, DC: U.S. Department of Justice, National Institute of Corrections.
- Jan, L. J. (1980). Overcrowding and inmate behavior. *Criminal Justice and Behavior*, 7(2), 293–301.
- Johnson v. California*, 543 U.S. 499 (2005)
- Kellar, M., & Wang, H. M. (2005). Inmate assaults in Texas county jails. *The Prison Journal*, 85(4), 515–534.
- Kinkade, P., & Leone, M. (1995). The consequences of jail crowding. *Crime and Delinquency*, 41(1), 150–162.
- Klofas, J. M., & Stojkovic, S. (1992). The meaning of correctional crowding: steps toward an index of severity. *Crime and Delinquency*, 38(2), 171–189.
- Leger, R. G. (1988). Perception of crowding, racial antagonism, and aggression in a custodial prison. *Journal of Criminal Justice*, 16, 167–181.
- Levinson, R. B. (1999). *Unit Management in Prisons and Jails*. Lanham, MD: American Correctional Association.
- McCain, G., Cox, V. C., & Paulus, P. B. (1980). *The effects of prison crowding on inmate behavior*. Washington, DC: National Institute of Justice.
- Megargee, E. (1977). The association of population density, reduced space and uncomfortable temperatures with misconduct in a prison community. *American Journal of Community Psychiatry*, 3, 289–298.
- Mertler, C. A., & Vannatta, R. A. (2002). *Advanced and multivariate statistical methods* (2nd ed.). Los Angeles, CA: Pyrczak Publishing.
- Mullen, J. (1985). Prison crowding and the evolution of public policy. *The Annals of the American Academy of Political and Social Science*, 478, 31–46.

- Nacci, P., Prather, J., & Teltelbaum, H. (1977). Population density and inmate misconduct rates in the federal prison system. *Federal Probation*, 41(2), 26–31.
- Nelson, W. R. (1986). Can cost savings be achieved by designing jails for direct supervision inmate management? In J. Farbstain & R. Wener (Eds.), *Proceedings of the First Annual Symposium on Direct Supervision Jails*. Boulder, CO: National Institute of Corrections.
- Nelson, W. R., & Davis, R. M. (1995). Podular direct supervision: the first twenty years. *American Jails*, 9(3), 11–22.
- Newman, O. (1972). *Defensible space*. New York: Collier Books.
- Parrish, D. M. (2000). The evolution of direct supervision in the design and operation of jails. *Corrections Today*, 62(6), 84–87, 127.
- Paulus, P. B. (1988). *Prison crowding: A psychological perspective*. New York: Springer-Verlag.
- Paulus, P. B., Cox, V., McCain, G., & Chandler, J. (1975). Some effects of crowding in a prison environment. *Journal of Applied Social Psychology*, 5, 86–91.
- Paulus, P. B., & McCain, G. (1983). Crowding in jails. *Basic and Applied Social Psychology*, 4, 89–107.
- Regoeczi, W. C. (2003). When context matters: a multilevel analysis of household and neighbourhood crowding on aggression and withdrawal. *Journal of Environmental Psychology*, 23, 457–470.
- Sechrest, D. K. (1991). The effects of density on jail assaults. *Journal of Criminal Justice*, 19, 211–223.
- Senese, J. D. (1997). Evaluating jail reform: a comparative analysis of podular/direct and linear jail inmate infractions. *Journal of Criminal Justice*, 25(1), 61–73.
- Stojkovic, S., & Klofas, J. (1997). Crowding and correctional change. In T. Alleman & R. L. Gido (Eds.), *Turnstile justice: Issues in American corrections* (pp. 90–109). Upper Saddle River, NJ: Prentice Hall.
- Stokols, D. (1972). On the distinction between density and crowding: some implications for future research. *Psychological Review*, 79(3), 275–277.
- Tartaro, C. (2002a). Examining implementation issues with new generation jails. *Criminal Justice Policy Review*, 13(3), 219–237.
- Tartaro, C. (2002b). The impact of density on jail violence. *Journal of Criminal Justice*, 30(6), 499–510.
- Tartaro, C. (2006). Watered down: partial implementation of the new generation jail philosophy. *The Prison Journal*, 86(3), 284–300.
- Thompson, J. A., & Mays, G. L. (1991). The political and organizational context of American jails. In J. A. Thompson & G. L. Mays (Eds.), *American jails* (pp. 3–21). Chicago: Nelson-Hall Publishers.
- Toch, H. (1985). Warehouses for people? *The Annals of the American Academy of Political and Social Science*, 478, 59–72.
- Toch, H. (1992). *Living in prison: The ecology of survival*. Washington, DC: American Psychological Association.
- Walters, G. D. (1998). Time series and correlational analyses of inmate-initiated incidents in a large correctional system. *International Journal of Offender Therapy and Comparative Criminology*, 42(2), 124–132.
- Wener, R., Frazier, F. W., & Farbstain, J. (1993). Direct supervision of correctional institutions. In National Institute of Corrections (Ed.), *Podular, direct supervision jails* (pp. 1–8). Longmont, CO: National Institute of Corrections, Jails Division.
- Wooldredge, J. D. (1997). Explaining variation in perceptions of inmate crowding. *The Prison Journal*, 77(1), 27–40.
- Wortley, R. (1998). A two-stage model of situational crime prevention. *Studies in Crime and Crime Prevention*, 7(2), 173–188.
- Wortley, R. (2001). A classification of techniques for controlling situational precipitators of crime. *Security Journal*, 14, 63–82.
- Wortley, R. (2002). *Situational prison control*. Cambridge: Cambridge University Press.
- Yocum, R., Anderson, J., DaVigo, T., & Lee, S. (2006). Direct-supervision and remote-supervision jails: A comparative study of psychosocial factors. *Journal of Applied Social Psychology*, 36(7), 1790–1812.
- Zupan, L. L., & Stohr-Gillmore, M. K. (1988). Doing time in the new generation jail: inmate perceptions of gains and losses. *Policy Studies Review*, 7(3), 626–640.

Christine Tartaro is an Associate Professor of Criminal Justice at the Richard Stockton College of New Jersey. She holds a Ph.D. in Criminal Justice from Rutgers University and has worked as a researcher for the Police Foundation, the New Jersey Juvenile Justice Commission, and the New Jersey Department of Corrections. Her research interests include prisons and jails, suicide in correctional facilities, violence in prisons and jails, and crime prevention.

Marissa P. Levy is an Assistant Professor of Criminal Justice at the Richard Stockton College of New Jersey. She has a Ph.D. in Criminal Justice from Rutgers University and has worked as a Research Associate at the Crime Prevention Analysis Lab at California State University–San Bernardino. Her research interests include ecological criminology, crime prevention, crime mapping, and research methods.