INSTITUTIONAL CONDITIONS AND PRISON SUICIDE: CONDITIONAL EFFECTS OF DEPRIVATION AND OVERCROWDING

MEREDITH P. HUEY
THOMAS L. MCNULTY
The University of Georgia

This article uses national data on prisons in the United States to examine the effects of deprivation, overcrowding, and their interaction on the likelihood of prison suicide. Our central argument is that overcrowding is a pivotal feature of prison environments that conditions the effects of deprivation. Findings provide substantial support for this hypothesis. For example, at low levels of overcrowding, minimum-security facilities evidence a lower probability of prison suicide, but at high levels, they are as likely to experience a suicide as their medium- and maximum-security counterparts. Theoretical and policy implications of the findings are discussed.

Keywords: *prison suicide; deprivation; overcrowding*

In the United States, suicide rates among prison inmates are higher than in the general population and suicide accounts for more than half of all deaths in custody (Kupers, 1999). Prison suicide is of important interest to researchers investigating the effects of incarceration on inmate adjustment to life in total institutions. Prior research has focused on the individual characteristics of inmates as explanatory variables, particularly indicators of mental health (Anno, 1985; California Department of Corrections, 1991; Jones, 1986; Lloyd, 1992; New York State Department of Correctional Services, 1994; Skegg & Cox, 1991).[1] This focus is related to the "medicalization" of suicide, the assumptions of which are evident in both popular stereotypes and explanations of inmate suicide put forth by social scientists and policy makers. The causes of suicide are widely assumed to reflect underlying mental and emotional disorders, and hence public policy "seeks to change potential vic-

THE PRISON JOURNAL, Vol. 85 No. 4, December 2005 490-514
DOI: 10.1177/0032885505282258

tims," with emphasis on the prediction, prevention, and treatment of suicidal prisoners (Conrad, 1980; Hayes, 1995, 1999).

Although this research has provided the basis for suicide prediction and prevention strategies, the exclusive focus on an individual level of explanation has obscured attention to the larger institutional context in which the event occurs (Lester & Danto, 1993). As Liebling (1995, 1999) has noted, a preoccupation with the individual is conceptually limited, and the individual prediction approach has not succeeded in either understanding or preventing inmate suicide. Thus, there is a need for theory and research that moves beyond the medicalization model toward an understanding of prison suicide in terms of the institutional conditions under which inmates are held.

As a means to advance the literature, this article uses national data on U.S. prisons (1990 and 1995) to evaluate the effect of prison characteristics on the likelihood of suicide. Whereas prior research has described the problem as inmate suicide, we use the term *prison suicide*, which better captures that individual actions are embedded in social contexts.[2] Specifically, we focus on the effects of deprivation, overcrowding, and the interaction between them on the likelihood of prison suicide. Deprivation theory predicts that prisons in which inmates experience a greater loss of freedom, have lesser control over daily routines, and are denied access to rehabilitative programs will have a higher incidence of suicide. Overcrowding theory stresses the deleterious effects of crowding on inmate adaptation to prison life, one consequence of which is a greater likelihood of suicide. Central to our argument is that overcrowding is a pivotal factor that conditions the effects of deprivation on prison suicide. This possibility has been left unexplored in prior research, despite widely assumed detrimental repercussions of overcrowding in an era in which many prisons routinely operate over capacity (Kupers, 1999). The following sections discuss our conceptual framework in more detail.

THEORETICAL BACKGROUND

DEPRIVATION THEORY

Deprivation of freedom has long been argued to be a primary explanation of violence in prisons and other institutions (e.g., Ellenberger, 1971; Suedfeld, 1977; Sykes, 1958). The classic work of Glass and Singer (1972), supported by later research (Moos, 1976), has shown that the unpredictability of, and lack of control over, environmental inputs are significant causes of behavioral breakdown. Research generally supports the prediction that pris-

ons in which inmates experience greater deprivation and loss of control over personal autonomy have a greater likelihood of suicide. The most common indicator of deprivation in prior research has been the prison security-level. Salive, Smith, and Brewer (1989), for example, argue that maximum-security facilities exemplify deprivation and loss of control and hence have a higher incidence of suicide compared to minimum- and medium-security prisons (Adams, 1992; Liebling, 1999). Other studies, however, have found exceptions to this pattern across security levels (Skegg & Cox, 1991; Zamble & Porporino, 1988).

Research indicates that inmates adapt better to life in prison when they are allowed some measure of control over the immediate environment—which is less likely in high-security settings (Canter, 1987; Moos, 1970, 1975; Toch, 1985; Wright & Goodstein, 1989). In a study of the Texas, California, and Michigan prison systems, DiIulio (1987) reports that prisons characterized by order and security tend to experience less violence. Yet, prison facilities that remove the opportunity for inmate violence through strict social control also produce serious dehumanizing effects on inmates that, in turn, increase the likelihood of suicide (DiIulio, 1987). Liebling (1995, 1999), based on research in the United Kingdom, also finds that inmates entering high-security prisons tend to adapt slowly and that suicide is most common among those who cope poorly with features of the prison environment.

One explanation for the higher incidence of suicide in maximum-security prisons is the social isolation experienced by inmates, both within the prison itself and from loved ones on the outside. Based on extensive interview data, Kupers (1999) concludes that disconnection from family is a primary reason given for suicide attempts and that a majority of inmates who make serious attempts are distraught about their ability to cope with a lengthy sentence separated from loved ones. This separation is argued to be an important factor affecting inmate adjustment to prison life and may be more acute in higher security settings because visitation is more strictly controlled and curtailed (Kupers, 1999).

Deprivation has also been argued to increase the likelihood of suicide by inhibiting the development of inmate social networks and informal groups within the prison (e.g., Clemmer, 1958; Goffman, 1961; Payson, 1975). Inmates seek out friendship networks for social support and protection and to alleviate the "pains of imprisonment" (Sykes, 1958). This mutual support reduces uncertainty and fear, while increasing inmates' sense of control over the prison environment. Salive et al. (1989), based on a study of suicides in the Maryland prison system, argue that informal inmate networks are less likely to develop in maximum—rather than in minimum/medium—security facilities because inmates are more often housed in single cells and for longer

periods of the day, lessening the opportunity for social interaction and the provision of social support. In addition, the actual opportunity to succeed in committing suicide is greater because guardianship (e.g., the intervention of another inmate) is less likely when inmates are isolated in separate cells.

Related research documents that suicides occur most often among inmates confined in isolation or single cells (Kupers, 1999). Green, Andre, Kendall, Looman, and Plovi (1992) find that one third of the 133 suicides in Canadian Federal Prisons from 1990 to 1991 occurred in protective segregations; 1 in 10 were in punitive isolation at the time of death. In a review of Italian prison suicides for 1996 and 1997, Tatarelli et al. (1999) report that 20% of the inmates who committed suicide were in isolation cells and 40% in single cells. Anno (1985), based on a 5-year study of suicides in the Texas penal system, also finds that a vast majority of prison suicide victims are housed in single cells. Lester (1990) shows as well for U.S. prisons that suicide rates are negatively associated with the percentage of inmates in multiple occupancy cells (see also Cox, Paulus, & McCain, 1984; Jones, 1986; Marcus & Alcabes, 1993; White & Schimmel, 1995; Winkler, 1992).

Another aspect of deprivation is the extent to which prison facilities provide inmates with access to rehabilitation and other programs designed to facilitate transition to life outside prison, including psychological/mental health counseling, education programs, and work skills training. Suicide may be more likely in prison environments that lack or provide limited access to such programs because of heightened idleness, isolation, and sense of fatalism among inmates. Through a process of contagion, this may create an antagonistic social atmosphere of frustration and indifference that affects both inmates and staff. This atmosphere may reinforce punitive attitudes among correctional staff and diminish their sensitivity to cues of impending suicide, which are interpreted instead as inmate "manipulation" or "misbehavior" deserving of further punishment (Kupers, 1999). Ironically, this punishment typically entails administrative segregation in isolation cells—precisely where suicides are most likely to occur. Under conditions of tight fiscal constraints, prison systems (federal, state, and private) have eliminated rehabilitative programs in recent years, one consequence of which may be a significantly elevated probability of prison suicide.

OVERCROWDING THEORY

Prison overcrowding is currently an extremely pertinent theoretical and policy issue, as many prisons nationwide routinely operate over capacity. It is widely assumed in the literature—reinforced through court decisions—that overcrowding exerts deleterious effects on the psychological and behavioral

well-being of inmates.[3] Toch (1985) argues that overcrowding amounts to warehousing, where inmates are denied essential subsistence services and correctional rehabilitation. A former inmate and prison activist details these system deficiencies in a personal account of his experience incarcerated in an overcrowded, maximum-security prison (Cobb, 1985). His ethnography reveals deficient medical attention, diminished security, lack of access to rehabilitative programs, and relentless idleness as primary correlates of overcrowding.

Evaluations of crowding effects have produced somewhat mixed results with respect to whether overcrowding has a direct effect on prison suicide and other forms of violence (Ekland-Olson, 1986; Ellis, 1984; Lester, 1990). Yet, several studies support the hypothesis that the stress of crowding—and the accompanying struggles for resources, space, and personal autonomy—create atmospheres that impede inmate adaptation to prison life and increase the likelihood of suicide (Gaes, 1992). Further, access to rehabilitation, education, and other programs may be more limited in overcrowded settings, adding to inmate idleness and frustration that may, in turn, heighten the probability of a suicide occurring.

In an evaluation of 527 U.S. prisons for the years 1979-1984, Innes (1987) finds that increases in inmate populations are significantly associated with increases in the number of suicides. Cox et al. (1984) examine rates of suicide in the Illinois, Mississippi, Oklahoma, and Texas prison systems from the early 1950s to the late 1970s, and similarly find that prison overcrowding is associated with increases in suicide rates. Although these findings are consistent with the predictions of overcrowding theory, not all of the research has been supportive (see Farrington & Nuttall, 1980; Greenfeld, 1982; Lebowitz & Pospichal, 1979; McCain, Cox, & Paulus, 1980).

CONDITIONAL EFFECTS OF DEPRIVATION AND OVERCROWDING

In treating deprivation and overcrowding as distinct sets of processes, prior theory and research have not considered the potentially more complex manner by which these factors might influence the likelihood of suicide. In particular, prison suicide studies have not examined whether deprivation and overcrowding processes are mutually dependent in their effects. Our central argument, and the principal hypothesis tested below, is that overcrowding is a pivotal factor that conditions the effect of differences in deprivation on prison suicide.

Deprivation theory predicts, consistent with prior research, that medium- and maximum-security prisons have a greater likelihood of suicide than

minimum-security facilities (and maximum more than medium security). Yet, although levels tend to be lower, the effect of overcrowding may be more pronounced in minimum-security prisons because in higher security settings, both deprivation and overcrowding tend to be more severe, and hence the effect of increases in the latter is more attenuated. This variation in the effect of overcrowding may account for the differential risk for suicide across levels of deprivation documented in previous studies.

The hypothesis implies that the greater likelihood of suicide in medium- and maximum-security facilities observed in prior research will be most evident at low levels of overcrowding and hence indicative of differences in deprivation. Conditions of high overcrowding, however, may negate the reduced likelihood of suicide evident in minimum-security facilities. That is, among prisons operating over capacity, differences in deprivation are less important, and minimum-security prisons are as likely to experience a suicide as their higher security counterparts. Our argument points to overcrowding as a critical feature of prison environments that must be considered in conjunction with deprivation in prison life.

DATA AND METHOD

DATA AND SAMPLE

The data are drawn from the fourth and fifth enumerations of the Census of State and Federal Adult Correctional Facilities (CCF), collected in 1990 and 1995 by the U.S. Census Bureau on behalf of the U.S. Department of Justice and Bureau of Justice Statistics (1993, 1998). These censuses represent the most comprehensive national collections available, including coverage of 1,287 state, federal, and private facilities in 1990 and 1,500 in 1995. Each census provides information on prison conditions, including inmate population size, design capacity, security level, facility design, operational authority, rehabilitative programs offered, and the level of inmate participation in them. Data on the cause of inmate deaths are also available, including those due to suicide.

In the analysis presented below, we combine information from the two years and predict the incidence of prison suicide in 1995 with independent variables drawn from the 1990 census, including a (lagged) measure of the incidence of suicide in 1990. After identifying prisons that participated in both years, and eliminating a few cases with missing data, the sample for the analysis includes 1,118 facilities nationwide.

DEPENDENT VARIABLE

Given that suicide is in general a rare event, we use a binary outcome that distinguishes prisons that had no suicides (coded 0) and those that had at least one reported suicide in 1995 (coded 1). The lagged measure of suicide in 1990 is calculated analogously. Examination of the frequency distribution for numbers of suicides suggests that this procedure is reasonable. Most of the prisons report no suicides in either year, and among those who have, most have experienced only one or two episodes (summed across both years, the maximum number in our data is six). Thus, we draw the distinction between prisons that have or have not experienced a suicide, and downplay the very limited variation among those who have. Accordingly, logistic regression is used to estimate the log-odds of prison suicide in 1995 as a function of deprivation, overcrowding, and control variables.

DEPRIVATION AND OVERCROWDING MEASURES

We include two indicators of deprivation that have been widely used in prior research. Security level is represented by dummy-coded variables distinguishing maximum-, medium-, and minimum-security prisons (the reference). Our second indicator is the percentage of inmates participating in psychological/mental health counseling, self-help groups, and educational and work skills training/release programs.

Overcrowding is indicated by a standardized index including (a) the total size of the inmate population, (b) the difference between the total number of inmates and the design capacity of the prison, and (c) the difference between the number of inmates and the number of correctional staff. This measure captures not only the total size of inmate populations but also the size relative to both the prison's capacity and correctional staff. It thus provides a good indicator of overcrowding and the extent to which prisons are operating over or under capacity. The component measures are highly correlated (in excess of .75), load on a common factor, and the resulting index has excellent reliability (alpha = .91).

To assess conditional effects, product terms are formed between the security-level dummy variables and the overcrowding index, following the procedures outlined by Aiken and West (1991).[4] Note that because the overcrowding index is normalized with a mean of zero, the main effects of the security-level variables (medium, maximum) will reflect the difference in the log-odds of suicide (relative to minimum) at the grand mean of overcrowding (see Aiken & West, 1991). We probe the interaction further by examining variation in the security-level effects at one-half standard devia-

tion above and below the grand mean. Appendix A in appendices shows the distribution of minimum-, medium-, and maximum-security prisons across these levels of overcrowding.[5]

CONTROL VARIABLES

The analysis includes several control variables suggested in prior research to be predictive of prison suicide. As noted, we include a binary measure coded 1 for prisons that experienced suicides in 1990 as a means to control for stability (and potential randomness) in the likelihood of suicide overtime. As an additional control for the risk of experiencing a suicide, we include a binary variable that compares prisons with (coded 1) and without (coded 0) psychiatric facilities on site. Persons at risk of suicide are more often assigned to prisons with on-site psychiatric facilities, and hence it is essential to control for this differential risk across prisons in the multivariate analysis.[6]

We also control for facility age in years (since first construction), perhaps indicative of the general physical and aesthetic quality of the prison setting. The gender composition of prisons is indicated by a set of dummy-coded variables distinguishing male-only prisons (reference), female-only prisons, and facilities that house both male and female inmates. Research suggests that suicide is more likely when inmates are housed in single cells, and hence we include dummy variables contrasting prisons with single-cell occupancy, multiple-cell occupancy (e.g., two-person), and those with dormitory-style housing (the reference). Finally, given preliminary analysis indicating variation in prison suicide with region and operational authority, we include indicators distinguishing prisons located in the North, South, West, and Midwest (reference), and between prisons under federal, private, and state (reference) authority.

SENSITIVITY ANALYSES

To assess the robustness of the findings reported below, we have conducted extensive sensitivity analyses exploring a variety of alternative model specifications. First, we replicated the analysis of prison suicide in 1995, including the lagged dependent variable, but with the remaining predictors drawn from the 1995 (rather than 1990) census. Although these analyses lead to substantively similar conclusions, we regard the models with 1990 predictors as more judicious for several reasons. First, prison overcrowding increased significantly between 1990 and 1995 ($t = 11.78$; $p < .000$), and hence the estimate of the effect of overcrowding in 1990 on the log-odds of suicide in 1995 is more conservative. The 1995 data also do not include

important predictors available in the earlier census, including whether the prison has a psychiatric facility and levels of inmate participation in psychological counseling and other rehabilitative programs. Finally, employing 1990 predictors circumvents any potential causal order issues and makes optimal use of the longitudinal data.

Second, we combined information from the two years and predicted the incidence of prison suicide in 1990 and/or 1995 with independent variables drawn from the 1990 census. An advantage of this approach is reduction in skew in the dependent variable. Third, we estimated separate cross-sectional models for 1990 and 1995. These analyses are not directly comparable, however, because identical indicators of some of the predictors are not available in both years. Nevertheless, these various model specifications lead to results that are substantively parallel to those reported below with regard to our key theoretical hypotheses, providing substantial confidence in the conclusions we draw.

ANALYTIC STRATEGY

Following a brief review of descriptive statistics, we estimate a series of five logistic regression equations predicting the log-odds of prison suicide. We begin with a model including the control variables and the percentage of inmates participating in rehabilitation programs (we include the latter at baseline as a means to illustrate its effect). The second and third models, respectively, incorporate the security-level indicators and the overcrowding index, and the fourth presents a fully specified equation including both sets of measures. This analytic structure allows us to compare their distinctive contributions to an explanation of prison suicide and their potential role in mediating the effects of other predictors. Central to our theoretical argument is the interaction effect between security level and overcrowding on suicide, the product terms for which are incorporated in the fifth and final model.

RESULTS

DESCRIPTIVE STATISTICS

Table 1 presents means and standard deviations for variables included in the analysis (Appendix B in appendices displays correlations). Approximately 10% of U.S. prisons experienced at least one suicide in both 1990 and 1995. About 15% of the prisons have psychiatric facilities on site and likely house more inmates at high risk of suicide. The average age of U.S. prisons is

TABLE 1: Means and Standard Deviations for Variables

	M	*SD*
Suicide 1995	.10	.30
Suicide 1990	.09	.28
Psychiatric facility	.15	.35
Facility age	36.81	31.74
Female prison [a]	.08	.27
Both male and female	.09	.29
Single occupancy [b]	.17	.37
Multiple occupancy	.42	.49
North [c]	.16	.36
South	.45	.50
West	.19	.39
Federal authority [d]	.05	.22
Private authority	.05	.22
Percentage participating	63.01	22.60
Maximum security [e]	.19	.39
Medium security	.34	.47
Overcrowding	.00	2.79

NOTE: *N* of cases = 1,118.
a. Reference is male prisons.
b. Reference is dormitory housing.
c. Reference is Midwest.
d. Reference is state authority.
e. Reference is minimum security.

approximately 36 years, although there is considerable variation around this value. It is not surprising that the majority of prisons house males (83%), whereas 8% are female-only facilities and 9% house both males and females. With respect to occupancy, 17% of prison facilities house inmates in single cells, 42% provide for multiple occupancy, with the remaining 41% having dormitory-style housing (most common in minimum- and to a lesser extent medium-security prisons).

Regionally, Northern states make up 16% of U.S. facilities, predominantly concentrated in Pennsylvania, New York, and New Jersey. The South has the largest number of prisons, making up 45% of the total nationwide. North Carolina has the most prisons of any state, nearly one facility per county. The West makes up 19% of all U.S. prisons, accounted for principally by California, which has a relatively large number of facilities compared to other Western states. Twenty percent of U.S. prisons are located in the Midwest, led by Illinois, Michigan, and Ohio in terms of numbers of prisons.

Most U.S. prisons are under state authority (90%), with the federal and private systems making up 5% each of prison facilities. Approximately 63%

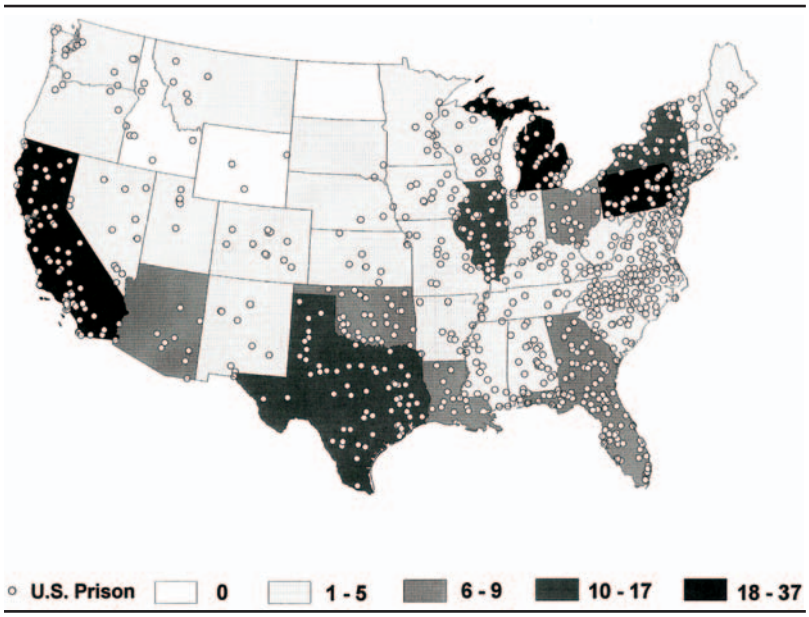

FIGURE 1: Distribution of U.S. Prisons and Incidence of Suicide by State

of inmates in U.S. prisons in 1990 were participating in educational, work release, or rehabilitation programs, including psychological counseling and self-help groups. The majority of facilities are minimum-security (47%), followed by medium-security (34%) and maximum-security (19%) prisons. With regard to overcrowding, 45% (507) of prisons fall within one-half of one standard deviation of the mean, 18% (200) have values greater than one-half of one standard deviation above, and 37% (411) have values one-half or more standard deviation units below the mean (see Appendix A). This indicates that a substantial number of prisons are operating at or above capacity, with many well above.

Figure 1 shows the distribution of U.S. prisons and the incidence of prison suicide by state. For illustrative purposes, this figure combines numbers of suicides in 1990 and 1995. The incidence of suicide is lowest in the South—although it has the largest number of prisons—with 11% of prisons in the region experiencing at least one suicide. Suicides were most common in prisons located in the Midwest, with 23% experiencing at least one (a figure primarily driven by Michigan and Illinois). About 15% to 16% of prisons in the North and West had at least one suicide in 1990 and/or 1995, accounted for mainly by Pennsylvania, New York, New Jersey, and California.

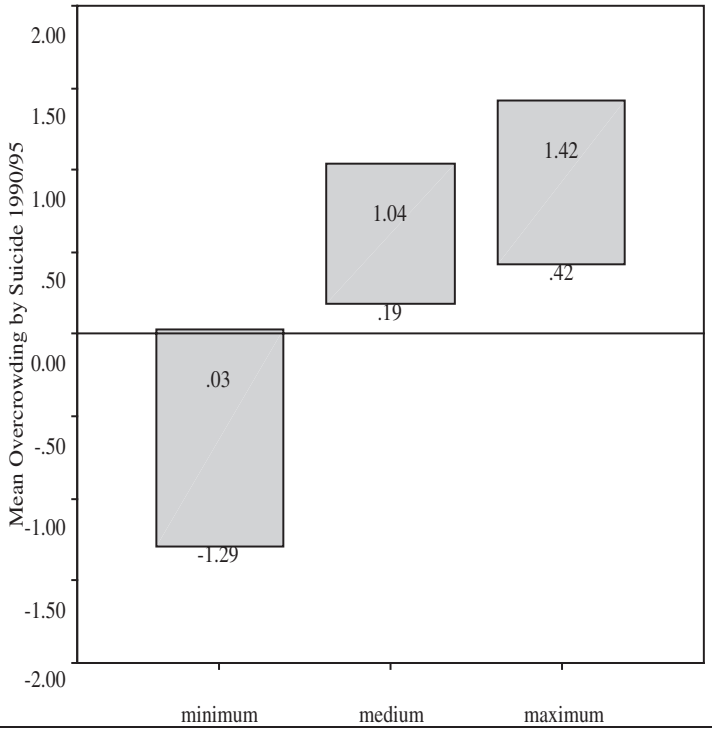

FIGURE 2: Mean Overcrowding and Suicide by Security Level

Considering the incidence of suicide by state, California, Michigan, and Pennsylvania had the greatest number, led by California with 37 suicides in 1990/1995. Texas, Illinois, New York, and New Jersey follow, each experiencing between 10 and 17 prison suicides in the two years (led by Texas with 17). Ohio, Georgia, Florida, Louisiana, Oklahoma, and Arizona also had comparatively high numbers of suicides (6 to 9). The only states that did not have any prison suicides were Idaho, Wyoming, and North Dakota, each of which has few prison facilities. Although numbers of suicides are related to the number of prisons in states, this is not always the case. For example, Arizona, with only nine prisons, experienced 9 suicides (1 per prison), whereas North Carolina had only 3 suicides despite having more prisons than any other state nationwide.

Figure 2 displays mean levels of overcrowding by the proportion of minimum-, medium-, and maximum-security prisons that experienced at least one suicide in 1990 and/or 1995. Consistent with deprivation theory, suicide is most common in maximum-security (42%), followed by medium-security (19%) and minimum-security facilities (3%). This figure also shows that levels of overcrowding are lowest in minimum-security (–1.29) and highest in maximum-security prisons (1.42) and that as overcrowding increases, the proportion of prisons experiencing a suicide increases dramatically (from 3% in minimum- to 19% in medium- to 42% in maximum-security facilities). Indeed, all of the prisons that had at least one suicide have values on the overcrowding index above the grand mean, with the average (2.67) nearly one standard deviation above, whereas all those that had no suicides fall well below the mean.[7] The following multivariate analysis examines these relationships in more detail.

MULTIVARIATE ANALYSIS

Table 2 presents the logistic regression equations predicting the log-odds of prison suicide. Model 1 includes the control variables as well as the percentage of inmates participating in rehabilitation programs. Prisons that experienced suicides in 1990 were also significantly more likely to experience at least one in 1995 (.777; $p < .01$). Indeed, facilities that had suicides in 1990 were nearly three times more likely to also have had a suicide in 1995. This suggests that prison suicide is not a random occurrence but rather consistently related to features of the prison environment.

As expected, prisons with on-site psychiatric facilities are significantly more likely to experience a suicide (1.345; $p < .01$) compared to those without them, reflecting in part the placement of high-risk inmates in the former. Older facilities also evidence higher log-odds of prison suicide, perhaps reflecting physical and ecological conditions of lesser quality than newer prisons. Compared to male-only prisons, the log-odds of suicide are significantly lower in facilities housing both males and females (–1.632; $p < .01$) and, to a lesser extent, females only (–1.127; $p < .10$). Consistent with prior research, prisons in which inmates are held in single or multiple cells are significantly more likely to have experienced a suicide compared to those in which inmates reside in dormitory-style housing. Differences by region and operational authority are not statistically significant once suicide in 1990 is controlled, suggesting that these differences are reflected in stable variations in the likelihood of suicide over time (captured by the lagged suicide effect). Finally, in line with deprivation theory, prisons in which larger percentages

TABLE 2: Logistic Regressions of the Incidence of Suicide in 1995 on Predictor Variables

Independent Variables	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*
Suicide in 1990	.777**	.550†	.359	.239	.325
Psychiatric facility	1.345**	.903**	1.074**	.769**	.748**
Facility age	.009**	.008**	.008**	.007*	.008*
Female prison [a]	–1.127†	–1.209†	–1.007	–1.049	–1.070†
Both male and female	–1.632**	–1.492*	–1.452*	–1.284*	–1.259†
Single occupancy [b]	1.213**	.697†	1.340**	.873*	.914*
Multiple occupancy	.894**	.717*	.816**	.671*	.777*
North [c]	–.407	–.477	–.468	–.508	–.475
South	–.345	–.513†	–.293	–.441	–.414
West	–.145	–.077	–.562	–.440	–.303
Federal authority [d]	.515	.469	.452	.481	.378
Private authority	–1.063	–.652	–.797	–.558	–.362
Percentage participating	–.017**	–.009	–.012*	–.006	–.004
Maximum security [e]		1.940**		1.613**	1.165**
Medium security		1.437**		1.067**	.501
Overcrowding			.182**	.145**	.954**
Overcrowding * maximum					–.866**
Overcrowding * medium					–.804**
Constant	–3.131	–3.893	–3.081	–3.678	–3.216
Pseudo R-square	.263	.303	.305	.329	.350

NOTE: Logit coefficients presented. *N* of cases = 1,118.
a. Reference is male prisons.
b. Reference is dormitory housing.
c. Reference is Midwest.
d. Reference is state authority.
e. Reference is minimum security.
†$p < .10$, *$p < .05$, **$p < .01$.

of inmates are participating in rehabilitation, education, and work skills programs evidence significantly lower log-odds of experiencing a suicide.

Model 2 incorporates the security-level indicators, which have theoretically expected effects. Compared to minimum-security prisons, both maximum-security (1.940; $p < .01$) and medium-security (1.437; $p < .01$) facilities have substantially and significantly higher log-odds of prison suicide. Consistently, the log-odds of suicide are also significantly higher for maximum- compared to medium-security prisons. Security level is by far the strongest predictor in the model. Indeed, maximum- and medium-security prisons are, respectively, about 7.5 and 4.5 times more likely to have experienced a suicide in 1995 than their minimum-security counterparts.

In addition, the security-level measures reduce the effect of suicide in 1990 to borderline significance (.550; $p < .10$), reflecting that suicide is less

likely in lower security settings and that deprivation is one feature of prison environments that is consistently related to the likelihood of suicide. Also noteworthy is that the effect of inmate program participation on the log-odds of suicide is no longer statistically significant in Model 2, a function of lower levels of participation in medium- and maximum-security prisons compared to minimum-security facilities. Further, the significantly lower log-odds of suicide observed in Model 1 for prisons with single cell occupancy relative to those with dormitory-style housing is reduced substantially to borderline significance (1.213 to .697). This finding is a function of a larger proportion of prisons with dormitory housing being minimum security, under which conditions suicides are less likely to occur.

Model 3 alternately incorporates the overcrowding index, which also has the theoretically expected effect: The log-odds of suicide are significantly higher in prisons in which there is a greater degree of overcrowding (.182; $p < .01$). Whereas the security-level measures reduce the suicide in 1990 coefficient to borderline significance (Model 2), the overcrowding index fully reduces this effect to zero. This indicates that overcrowding is another institutional condition that is consistently related to prison suicide, explaining why prisons that had suicides in 1990 were also more likely to experience suicides in 1995. Note also that the effect of inmate program participation retains a significant and theoretically expected net effect in reducing the log-odds of suicide in Model 3 (–.012; $p < .05$). In addition, overcrowding does not account for the contrast between facilities with single cell and dormitory occupancy, as do the indicators of deprivation (security level) in Model 2. Thus, the effect of program participation and occupancy design on the log-odds of prison suicide appears more a function of differences in deprivation than variation in levels of overcrowding.

Model 4 in Table 2 presents the fully specified equation, and Model 5 incorporates the product terms between the overcrowding index and the security-level dummy variables. Other than the reduction in the magnitude (but not significance) of the maximum, medium, and overcrowding coefficients (a function of considering their net effects), there are no especially noteworthy changes in the effects of the remaining variables in Model 4.

Consistent with our key hypothesis, however, Model 5 reveals a strong and significant interaction effect between overcrowding and security level on suicide in 1995 (chi-square = 12.86; $p < .01$). The negative coefficients for the product terms (–.866; –.804) indicate that the differences in the log-odds of suicide between security levels diminish significantly at higher levels of overcrowding. This finding suggests that the buffer against suicide provided by lesser deprivation in minimum-security facilities may be erased under conditions of high overcrowding.

TABLE 3: Probe of Interaction Effect Between Overcrowding and Security Level

Security-Level[a]	*Overcrowding Effect By Security-Level*	*Security-Level Contrasts By Levels of Overcrowding*		
		1/2 SD above	*At Mean*	*1/2 SD below*
Minimum	.954**			
Medium	.150**	-.621	.501	1.623**
Maximum	.088†	-.045	1.165**	2.374**

NOTE: Logit coefficients presented.
a. The log-odds of suicide are higher in maximum versus medium security prisons, but the difference does not vary significantly with levels of overcrowding.
†$p < .10$, *$p < .05$, **$p < .01$.

The main effects of maximum- and medium security indicate the difference in log-odds relative to minimum-security prisons at the mean level of overcrowding. Thus, the log-odds of suicide are significantly higher in maximum-security facilities (1.165; $p < .01$), whereas the difference between medium- and minimum-security prisons is not significant (.501) when evaluated at the mean of overcrowding. The interaction also indicates that the effect of overcrowding on the log-odds of suicide is significantly more pronounced in minimum-security prisons (.954; $p < .01$). The corresponding effect in maximum-security prisons is .088 (.954–.866; $p < .10$) and in medium-security prisons is .150 (.954–.804; $p < .01$).

Table 3 summarizes this variation in the overcrowding index effect across security levels (shown in the first column). This table also shows the security-level contrasts in the log-odds of suicide at specified levels of overcrowding (shown in columns 2-4). Consistent with our hypothesis, the higher log-odds of prison suicide in medium-/maximum-security compared to minimum-security facilities are most pronounced at lower levels of overcrowding (one-half standard deviation below the mean) and hence are primarily indicative of differences in deprivation. At one-half standard deviation above the mean of overcrowding, however, the likelihood of suicide in medium-/maximum-security prisons is not significantly higher than in minimum-security facilities.[8]

These findings indicate that the detrimental effects of high levels of overcrowding override the effects of differences in deprivation, thus nullifying the reduced risk of suicide in minimum-security prisons. This is consistent with the variation in the overcrowding effect, which is most pronounced in minimum-security and least pronounced in maximum-security facilities. To further illustrate this point and the pivotal effect of overcrowding, Figure 3 displays mean predicted probabilities of suicide (based on Model 5 in Table

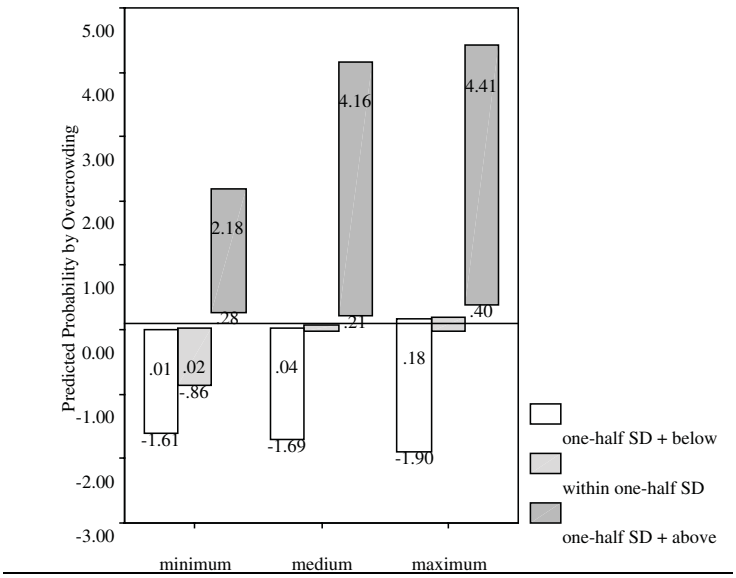

FIGURE 3: Predicted Probabilities of Suicide by Security Level and Overcrowding

2) by security level and the levels of overcrowding shown in Table 3. The horizontal line represents the mean predicted probability for the total sample (.10). Below this line, the top number in each bar is the mean predicted probability and the bottom number the mean on the overcrowding index; above the line, the mean predicted probability is the bottom number.

Figure 3 reveals that the probability of suicide increases dramatically as overcrowding increases and that this is particularly marked for minimum-security prisons. Indeed, the mean predicted probability (.28) of suicide is 96% higher in minimum-security prisons with values one-half or more standard deviation units above the overcrowding mean compared to their counterparts at the other extreme (.01). For medium- and maximum-security prisons, the predicted probability is 81% and 55% higher, respectively, in those with high compared to low overcrowding. Further, among prisons with low overcrowding, the predicted probabilities of suicide in medium- and maximum-security facilities are, respectively, 75% and 94% higher than in their minimum-security counterparts. Among those with high overcrowding, however, the predicted probabilities in medium- and maximum-security

facilities are only 25% and 30% higher than in minimum-security prisons. These results provide strong evidence for the key role played by overcrowding in prison suicide.

DISCUSSION

The emphasis in prior prison suicide research on an individual level of explanation has obscured attention to the institutional contexts in which inmates are held (Lester & Danto, 1993; Liebling, 1995, 1999). The purpose of this article has been to provide some balance in the literature by examining the effect of prison characteristics on the incidence of suicide using national data on U.S. prisons. Specifically, the analysis focused on the effects of deprivation, overcrowding, and the interaction between these factors on prison suicide. In addition to the focus on individuals, prior research has not considered whether deprivation and overcrowding processes are mutually dependent in their effects. Our central argument is that overcrowding is a pivotal factor that conditions the effects of deprivation on prison suicide.

Findings corroborate the predictions of deprivation and overcrowding theories but also indicate, consistent with our central argument, that overcrowding is a critical feature of prison environments that dramatically raises the risk of prison suicide. Our analysis reveals that the greater likelihood of suicide in medium-/maximum-security compared to minimum-security facilities is evident only at lower levels of overcrowding and hence indicative of differences in deprivation. Yet, at high levels of overcrowding, minimum-security prisons are as likely to experience a suicide as their higher security counterparts. These findings indicate that the reduced risk of suicide found in much prior research to be evident in minimum-security facilities is in fact voided by the deleterious effects of high overcrowding.

Theoretically, our results point to two primary implications. First, overcrowding is an institutional condition that clearly must be considered in conjunction with the effects of deprivation (and perhaps other prison characteristics that we were unable to examine here). Whereas prior theory and research have examined these conditions as separate issues, our findings suggest that what is needed is integration of deprivation and overcrowding perspectives into a unified theoretical framework. This article has taken an initial and modest step in this direction.

Second, and perhaps more important, our results suggest that research focused on an individual level of explanation that does not take into account the larger institutional context may be subject to specification error (and vice versa). Further research could evaluate this possibility and provide a more

stringent test of our arguments by simultaneously considering the effects of inmate and prison characteristics. This would allow for assessment of how individual-level characteristics (e.g., inmate mental health) might interact with or mediate the effects of the institutional conditions of prison environments.

For example, a reasonable hypothesis is that inmates with preexisting mental health issues may be especially affected by conditions such as overcrowding, perhaps accounting in part for their heightened risk of suicide documented in much prior research. Thus, in addition to integration of deprivation and overcrowding theories, integration of individual and institutional levels of analysis would likely contribute to substantial theoretical advances in the literature on prison suicide. Unfortunately, to our knowledge, data sets that link individual inmate and prison-level records are not readily available (at least at a national level).

From a policy perspective, reducing prison overcrowding should be a priority. Our analysis indicates that overcrowding is a strong predictor of heightened suicide and may threaten security and safety within prisons more generally by undermining the well-being of inmates. We do not suggest building more prisons; nor should suicide prediction and prevention strategies acclimatize to overcrowding. Rather, we offer a couple of potential alternatives. First, criminal justice policy, in contrast to the traditional "reactive" approach to crime, should focus more intently on the underlying causes of criminal behavior. These include (but are not limited to) family, community, school, and peer processes that have been shown in criminological research to relate to involvement in crime. Addressing these underlying causes through meaningful and proactive social policy would reduce the flow of people into the criminal justice system in the first place.

Second, our results suggest that increasing the provision and participation of inmates in rehabilitation, education, and work skills training programs would help prevent suicide. Participation in such programs would foster a more tolerable prison atmosphere (for correctional staff as well) by reducing idleness and frustration and would provide inmates with relevant skills as well as a sense of meaning and possibility. This might also contribute to reductions in overcrowding by better preparing inmates for successful reintegration and earlier releases into society. Programs within prisons, however, need to be connected to community-based services on the outside that can provide ex-inmates with job placement and educational opportunities upon release. Unfortunately, fiscal constraints, in part related to overcrowding, have led to the dismantling of rehabilitation and other programs in many prisons. Yet, as Kupers (1999) forcefully argues, that suicide accounts for more

than half of all deaths in custody ought to sound an alarm to policy makers about the inadequacies of the services provided to prisoners.

APPENDIX 1:
Distribution of Prisons by Overcrowding and Security Level

	Levels of Overcrowding			
Security Level	*1/2 SD + Below Mean*	*Within 1/2 SD of Mean*	*1/2 SD + Above Mean*	*Total*
Minimum	344	179	10	533
Medium	55	203	117	375
Maximum	12	125	73	210
Total	411	507	200	1,118

APPENDIX 2:
Correlations Between Variables

Variables	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
1 Suicide 1995	1.00									
2 Suicide 1990	.26	1.00								
3 Psychiatric facility	.28	.30	1.00							
4 Facility age	.13	.11	.09	1.00						
5 Female prison	–.06	–.07	–.01	.07	1.00					
6 Both male and female	–.07	–.01	–.02	–.02	–.09	1.00				
7 Single occupancy	.16	.17	.15	.03	.02	–.05	1.00			
8 Multiple occupancy	.05	.08	.07	.01	.08	.14	–.38	1.00		
9 North	.01	.01	.03	.21	–.01	–.05	.09	–.02	1.00	
10 South	–.07	–.09	–.01	–.15	–.03	–.13	–.15	–.11	–.39	1.00
11 West	–.01	.07	–.02	–.08	.07	.14	–.01	.05	–.21	–.44
12 Federal authority	.05	.06	–.04	–.01	–.05	.01	–.03	.10	–.02	.03
13 Private authority	–.06	–.07	–.08	.03	.09	.07	.04	.05	–.10	–.01
14 Percent participating	–.16	–.18	–.08	.09	.13	.03	–.08	.05	.13	–.01
15 Maximum security	.28	.28	.32	.07	–.02	–.08	.34	–.02	–.01	.05
16 Medium security	.05	.05	.11	–.08	–.02	.01	.01	–.03	.09	–.04
17 Overcrowding	.35	.40	.33	.07	–.09	–.06	.07	.09	.03	–.11

(continued)

APPENDIX 2 (continued)

Variables	*11*	*12*	*13*	*14*	*15*	*16*	*17*
1 Suicide 1995							
2 Suicide 1990							
3 Psychiatric facility							
4 Facility age							
5 Female prison							
6 Both male and female							
7 Single occupancy							
8 Multiple occupancy							
9 North							
10 South							
11 West	1.00						
12 Federal authority	.00	1.00					
13 Private authority	.22	–.05	1.00				
14 Percent participating	–.04	–.09	.16	1.00			
15 Maximum security	.09	–.06	–.09	–.29	1.00		
16 Medium security	–.02	.12	–.07	–.12	–.34	1.00	
17 Overcrowding	.09	.10	–.10	–.27	.24	.26	1.00

NOTES

1. The psychological make-up, mental illness, and psychiatric impairment of prison suicide victims is well documented in the literature (see Axelson & Wahl, 1992; Bland, Newman, Dyck, & Orn, 1990; Bonner & Rich, 1992; Dooley, 1990; Fogel, 1992; Green et al., 1993; Hurley, 1989; Ivanoff, 1992; Ivanoff & Jang, 1991; Maden, Swinton, & Gunn, 1994; Marcus & Alcabes, 1993; Skegg & Cox, 1991; Smyth & Ivanoff, 1994; Tatarelli et al., 1999).

2. Data on prison facilities linked with data on the individual inmates in them would provide a more thorough empirical test of our arguments. Unfortunately, to our knowledge, such data are currently not available on a national level.

3. See, for example, *Ruiz v. Estelle* (1980), *Holt v. Sarver* (1970), *Pugh v. Locke* (1976), *Hutto v. Finney* (1978), *Rhodes v. Chapman* (1982), and *Toussaint v. Rushen* (1983).

4. Preliminary analysis did not reveal a significant interaction between overcrowding and our other indicator of deprivation, the percentage of inmates participating in rehabilitative and other programs.

5. We use one-half (rather than full) standard deviation units to ensure a sufficient number of minimum-, medium-, and maximum-security prisons at each level of overcrowding. In particular, the number of minimum- and maximum-security prisons beyond a full standard deviation unit above (2 minimum) and below (2 maximum) the overcrowding mean is relatively small. Nevertheless, our reported results are fully replicated using full standard deviation units to probe the interaction (available on request).

6. In preliminary analysis, we also controlled for several additional measures that might relate to the differential risk of experiencing a suicide across prisons, including whether they have on-site medical facilities and other forms of prison violence such as homicides. None of these controls, however, reached statistical significance or affected the pattern of results reported in our models.

7. Note that the overcrowding index effectively controls for the differential risk of experiencing a suicide associated with numbers of inmates.

8. Although the log-odds of prison suicide are higher in maximum-security relative to medium-security prisons, the difference does not vary significantly with levels of overcrowding, suggesting that it is principally due to differences in deprivation.

REFERENCES

Adams, K. (1992). Adjusting to prison life. In M. Tonry (Ed.), *Crime and justice: A review of research* (Vol. 16, pp. 275-359). Chicago: University of Chicago Press.

Aiken, L., & West, S. (1991). *Multiple regression: Testing and interpreting interaction*. Newbury Park, CA: Sage.

Anno, B. (1985). Patterns of suicide in the Texas department of corrections, 1980-1985. *Journal of Prison and Jail Health*, *5*(2), 82-93.

Axelson, G. L., & Wahl, O. F. (1992). Psychotic versus nonpsychotic misdemeanants in a large county jail: An analysis of pretrial treatment by the legal system. *International Journal of Law Psychiatry*, *15*, 379-386.

Bland, R. C., Newman, S. C., Dyck, R. J., & Orn, H. (1990). Prevalence of psychiatric disorders and suicide attempts in a prison population. *Canadian Journal of Psychiatry*, *35*, 407-413.

Bonner, R., & Rich, A. (1992). Cognitive vulnerability and hopelessness among correctional inmates: A state of the mind model. *Journal of Offender Rehabilitation*, *17*(314), 113-122.

California Department of Corrections. (1991). *Suicide prevention in the California Department of Corrections: Annual report—1990*. Sacramento, CA: Author.

Canter, D. (1987). Implications of new generation prisons of existing psychological research into prison design and use. In A. Bottoms & R. Light (Eds.), *Problems of long-term imprisonment*. Aldershot: Gower.

Clemmer, D. (1958). *The prison community.* New York: Holt, Rinehart & Winston.

Cobb, A., Jr. (1985). Home truths about prison overcrowding. *Annals of the American Academy for Political and Social Science*, *478*, 73-85.

Conrad, P. (1980). *Deviance and medicalization.* St. Louis: Mosby.

Cox, V., Paulus, P., & McCain, G. (1984). Prison crowding research: The relevance for prison housing standards and a general approach regarding crowding phenomena. *American Psychologist*, *39*(1), 1148-1160.

DiIulio, J., Jr. (1987). *Governing prisons: A comparative study of correctional management*. New York: Free Press.

Dooley, E. (1990). Prison suicide in England and Wales, 1972-1987. *British Journal of Psychiatry*, *156*, 40-45.

Ekland-Olson, S. (1986). Crowding, social control, and prison violence: Evidence from the post Ruiz years in Texas. *Law and Society Review*, *20*(3), 389-421.

Ellenberger, H. F. (1971). Behavior under involuntary confinement. In A. H. Esser (Ed.), *Behavior and the environment: The use of space by animals and men*. New York: Plenum.

Ellis, D. (1984). Crowding and prison violence: Integration of research and theory. *Criminal Justice and Behavior*, *11*(3), 277-308.

Farrington, D., & Nuttall, C. (1980). Prison size, overcrowding, prison violence, and recidivism. *Journal of Criminal Justice*, *8*, 221-231.

Fogel, M. (1992). Investigating suicide. *Forum on Corrections Research*, *4*(3). Retrieved from http://www.csc-scc.gc.ca

Gaes, G. (1992). The effects of overcrowding in prison. In M. Tonry & N. Morris (Eds.), *Crime and justice: An annual review of research* (Vol. 6, pp. 95-146). Chicago: University of Chicago Press.

Glass, D. C., & Singer, J. E. (1972). *Urban stress: Experiments on noise and social stressors*. San Diego: Academic Press.

Goffman, E. (1961). *Asylums*. Garden City, NY: Anchor-Double Day.

Green, C., Andre, C., Kendall, K., Looman, T., & Plovi, N. (1992). A study of 133 suicides among Canadian federal prisoners. *Forum on Corrections Research*, *4*(3). Retrieved from http://www.csc-scc.gc.ca

Greenfeld, L. (1982). *Prison population and death rates*. Washington, DC: National Institute of Justice.

Hayes, L. (1995). Prison suicide: An overview and a guide to prevention. *The Prison Journal*, *75*(4), 431-457.

Hayes, L. (1999). Suicide in adult correctional facilities: Key ingredients to prevention and overcoming the obstacles. *Journal of Law, Medicine & Ethics*, *27*(3), 260-269.

Holt v. Sarver, 309 F. Supp. 362 (1970).

Hurley, W. (1989). Suicide by prisoners. *Medical Journal of Australia*, *151*(4), 188-190.

Hutto v. Finney, 437 U.S. 678 (1978).

Innes, C. (1987). The effects of prison density on prisoners. *Criminal Justice Archive and Information Network*, *1*, 3.

Ivanoff, A. (1992). Background risk factors associated with parasuicide among male prison inmates. *Criminal Justice and Behavior*, *19*(4), 426-436.

Ivanoff, A., & Jang, S. (1991). The role of hopelessness and social desirability in predicting suicidal behavior: A study of prison inmates. *Journal of Consulting and Clinical Psychology*, *59*(3), 394-399.

Jones, D. (1986). *Study of inmate suicides*. Frankfurt: Kentucky Corrections Cabinet.

Kupers, T. (1999). *Prison madness: The mental health crisis behind bars and what we must do about it*. San Francisco: Jossey-Bass.

Lebowitz, H., & Pospichal, T. (1979). *Federal and state inmate deaths, 1972-1978*. Unpublished manuscript. Washington, DC: Federal Bureau of Prisons.

Lester, D. (1990). Overcrowding in prison and suicide and homicide rates. *Perceptual and Motor Skills*, *79*, 271.

Lester, D., & Danto, B. (1993). *Suicide behind bars: Prediction and prevention*. Philadelphia, PA: The Charles Press.

Liebling, A. (1995). Vulnerability and prison suicide. *British Journal of Criminology*, *35*(2), 172-187.

Liebling, A. (1999). Prison suicide and prisoner coping. In M. Tonry & J. Petersillia (Eds.), *Prisons* (pp. 283-359). Chicago: University of Chicago Press.

Lloyd, C. (1992). Inmate suicide: What do we know? *Forum on Corrections Research*, *4*(3), 5-7. Retrieved from http://www.csc-scc.gc.ca

Maden, A., Swinton, T., & Gunn, J. (1994). Psychiatric disorder in women serving a prison sentence. *British Journal of Psychiatry*, *164*, 44-54.

Marcus, P., & Alcabes, P. (1993). Characteristics of suicides by inmates in an urban jail. *Hospital Community Psychiatry*, *44*, 256-261.

McCain, G., Cox, V., & Paulus, P. (1980). *The effect of prison crowding on inmate behavior*. Washington, DC: Law Enforcement Assistance Agency.

Moos, R. H. (1970). Differential effects of the social climates of correctional institutions. *Journal of Research in Crime and Delinquency*, *7*, 71-82.

Moos, R. (1975). *Evaluating correctional and community settings*. New York: John Wiley.

Moos, R. H. (1976). *The human context: Environmental determinants of behavior.* New York: John Wiley.

New York State Department of Correctional Services. (1994). *Characteristics of suicide victims in the NYDOCS between 1986 and 1994*. Albany: Author.

Payson, H. E. (1975). Suicide among males in prison. *Bulletin of the American Academy of Psychiatry and the Law*, *3*, 152-161.

Pugh v. Locke, 406 F. Supp. 318 (1976).

Rhodes v. Chapman, 452 U.S. 337 (1982).

Ruiz v. Estelle, 503 F. Supp. 1265 (1980).

Salive, M. E., Smith, G. S., & Brewer, T. F. (1989). Suicide mortality in the Maryland state prison system, 1979 through 1987. *Journal of the American Medical Association*, *262*, 365-369.

Skegg, K., & Cox, B. (1991). Impact of psychiatric services on prison suicide. *The Lancet*, *338*(8780), 1436-1439.

Smyth, N., & Ivanoff, A. (1994). Maladaptation and prison environmental preferences among inmate parasuicides. *Journal of Offender Rehabilitation*, *20*(3/4), 131-146.

Suedfeld, P. (1977). Environmental effects on violent behavior in prisons. *International Journal of Offender Therapy and Comparative Criminology*, *24*, 107-116.

Sykes, G. (1958). *The society of captives*. Princeton, NJ: Princeton University Press.

Tatarelli, R., et al. (1999). Suicide in Italian prisons in 1996 and 1997: A descriptive epidemiological study. *International Journal of Offender Therapy and Comparative Criminology*, *43*(4), 438-447.

Toch, H. (1985). Warehouses for people? *Annals of the American Academy for Political and Social Science*, *478*, 58-72.

Toussaint v. Rushen, 553 F. Supp. 1365 (1983).

U.S. Department of Justice and Bureau of Justice Statistics. (1993). *Census of state and federal adult correctional facilities, 1990* (Conducted by the U.S. Department of Commerce, Census Bureau, ICSPR ed.). Ann Arbor, MI: Inter-University Consortium for Political and Social Research [Producer and Distributor].

U.S. Department of Justice and Bureau of Justice Statistics. (1998). *Census of state and federal adult correctional facilities, 1995* (Conducted by the U.S. Department of Commerce, Census Bureau, ICSPR ed.). Ann Arbor, MI: Inter-University Consortium for Political and Social Research [Producer and Distributor].

White, T. W., & Schimmel, D. J. (1995). Suicide prevention in federal prisons: A successful five-step program. In L. Hayes (Ed.), *Prison suicide: An overview and guide to prevention*. Washington, DC: U.S. Department of Justice.

Winkler, G. E. (1992). Assessing and responding to suicidal jail inmates. *Community Mental Health Journal*, *28*, 317-326.

Wright, K., & Goodstein, L. (1989). Correctional environments. In L. Goodstein & D. L. MacKenzie (Eds.), *The American prison: Issues in research and policy.* New York: Plenum Press.

Zamble, E., & Porporino, F. (1988). *Coping, behavior, and adaptation in prison inmates*. New York: Springer-Verlag.

Meredith P. Huey is a Ph.D. candidate in sociology at the University of Georgia. She received her M.A. in sociology from the University of North Carolina, Greensboro. She currently works as a researcher at the Center for Research on Behavioral Health and Human Services Delivery at the University of Georgia. Her research interests include the social control of crime and the medicalization of deviance.

Thomas L. McNulty received his Ph.D. in 1996 at the University at Albany–SUNY. He is currently an associate professor of sociology at the University of Georgia. His current research focuses on the role played by community and spatial contexts in explanation of racial/ethnic differences in violence, the relationship between gangs, drugs, and violence, and labor market effects on delinquency.