Our Title: Relationship between Prison Conditions, Inmate Characteristics, and Suicide
Author's Title: Deprivation, Importation, and Prison Suicide: Combined Effects of Institutional
Conditions and Inmate Composition
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Design Issue:
Purpose: This study used secondary data to investigate the combined effect of prison conditions (level of deprivation), inmate demographic composition (importation), and systemic characteristics (prison age and size, public versus private facility, inmate population) on the inmate suicide rate in state facilities in the United States.

Rationale:
- Identified as a high risk population for suicide by the World Health Organization (2000), suicide ranks second as the cause of death in U.S. prisons (Mumola, 2005); the national average for suicide is lower than that in prison.
- Numerous researchers have examined inmate demographics, mental health characteristics, and prison conditions, but often independent of one another. Many studies have been based on small samples or singular facilities and focused on legal aspects of suicide and preventative measures. Few have empirically examined the interaction between the physical environment and inmate characteristics as possible contributors to suicide at some prisons but not at others.

Design Criteria:
The author identified the following design criteria:
- Be aware when designing programming spaces (used for education, vocation, or life-skills classes, and mental health therapy, etc.) of the negative impact of overcrowding on the inmates' attention and participation.
- Consider the relationship between design aspects of a prison's physical conditions and inmates' mental health.

InformeDesign identified the following design criteria:
- Consider ways to decrease any physical environment factors that could assist an inmate committing suicide, especially when designing for higher security settings where deprivations were the greatest.

Key Concepts:
- Prisons vary from extreme levels of inmate isolation (supermaximum, i.e., supermax facilities) to models of managed social or community interaction (work release, family visits in minimum security facilities). The highest levels of security correlate to suicide rates, as demonstrated in New York State from 1993-2001, where 83% of suicides occurred in their maximum security facilities (Way, 2005), whereas integration in the community and in-

prison treatment, educational, or vocational programming has shown to be related to lower inmate suicide rates (Huey & McNulty, 2005).

- Studies of prison suicide have primarily focused on the forensics of the suicide in an effort to inform prevention policies; facility characteristics are typically not examined.
- The deprivation model acknowledges that the prison environment as a system produces supreme loss of freedom and isolation, typically manifest in inmates as violence, aggression, anxiety, distress, and suicide when they are less able to cope. Overcrowding, bullying, and the incidence of inactivity due to lack of programming are other characteristics typically identified with deprivation that have been found to be factors contributing to the inmate suicide rate. Deprivation causes misconduct in some inmates and compliance in others.
- The importation model considers inmates' demographic, social, and psychological characteristics that contribute to their ability to adapt to prison, influencing the suicide rate. These characteristics are linked to the majority of prison suicides proportionally to the population as a whole, namely, youthful or vulnerable inmates, White males, and those with mental illness (psychotic disorders, anxiety, depression, drug/alcohol addiction, prior suicide attempts).
- Of the prisons studied (1,082), 12% (130) reported one to four suicides (172); nearly half (48.9%) of prisons were over capacity; and facilities that were under court order to reduce inmate population (10.5%) had a significant impact on the number of suicides (1.93 times) over prisons that were not overcrowded to that degree. The assault rate averaged about 4:100 inmates, though in prisons where suicides occurred, the assault rate of 6:100 inmates raised the suicide risk significantly (1.23 times).
- The prison's security level was the greatest predictor of suicide both when analyzing the deprivation model independently and as combined with the importation model. Prisons that reported suicides had greater levels of deprivation and 58% of suicides occurred in maximum security prisons (a factor of 3.27 times as compared to minimum security prisons), though that security level represents only 25% of the prisons sampled; for supermaximum prisons the factor was increased again (6.74 times).
- Of the importation variables, only mental health services being received by inmates was correlated with suicide rate, increasing the rate approximately 19% (1.17 times) over inmates not receiving mental health services. Prison age was the only control variable that was significant (all three models); the older the building, the greater the number of suicides occurring there.

Research Method:
- Secondary data were sampled from the 2000 U.S. Census of State and Federal Adult Correctional Facilities (CCF). This was a longitudinal, national survey of prisons conducted by the U.S. Census Bureau (funded by the Department of Justice and the Bureau of Justice Statistics). Of the population of federal prisons (84) and state facilities (1,584; state- and privately-run, plus Washington, DC), facilities with missing data (the federal prisons) and single-purpose facilities (addiction rehabilitation centers, work release programs) were

eliminated, creating a study sample of 1,082 state prisons.

- A theoretical framework used for this study to evaluate characteristics of both the deprivation and importation models and their possible interaction and influence on the inmate suicide rate, using regression equations for variables of each construct (deprivation, importation) independently first, followed by testing of both in context with the control variables. Via multivariate analyses, the dependent variable was operationalized as the annual U.S. prison suicide rate for the year 2000.
- Prison size was normalized as the average daily population (ADP) as it was assumed that prison size would affect suicide behavior and that analysis of multiple, but unequal numbers of prisons within states would impact suicide statistics.
- Deprivation variables (6; independent) measured the degree to which prison cut inmates off from society (3 measures; prison location as rural or urban, whether or not the inmate could leave the facility for work or programming, and security level: supermaximum, maximum, medium, and minimal security prisons), level of deprivation of goods and services within the prison (2 measures; overcrowding as it related to operation under or over capacity and if the prison was under a court order to reduce population, and the number of programs offered, such as addiction, HIV/AIDS, mental health, sex offender counseling, employment, life-skills, or parenting skills), and the level of violence (1; inmate on inmate and inmate on staff assaults).
- Importation variables (4; independent) measured inmates' characteristics as aggregate-level data at the prison level examining demographics (3; gender, age, and racial composition) and inmates who receive mental health services in prison. Gender as a characteristic of prison population included male only, female only, and prisons with both genders present. Regarding race, White inmates were identified as a percentage of the inmate population, as previous studies identified that race to have higher suicide rates.
- Systemic variables (control) identified from previous research as related to suicide frequency were also included; state- versus privately-run facilities, the age of the prison (in years), prison size based on the ADP, and the U.S. residents' suicide rate (as a comparison to the in-prison suicide rate) as provided by the Center for Disease Control and Prevention (CDC).
- Analysis included a negative binomial regression model based on multivariate regression analyses. Beta coefficients (β) for each of the three models (deprivation, importation, and combined) were established and robust significance levels were calculated (two-tailed test). Dispersion parameter (α), log psuedolikelihood, and Wald chi-square (df) were calculated.

Limitations of the Study:
The author identified the following limitations:
- As the prison was the unit of analysis and not the individual inmate, identification of who is committing suicide and the reasons for it are unknown. The inmates' perceptions about deprivation are also unknown.
- It is unknown if the inmates committing suicide in prison are the same ones receiving

mental health services, based on the CCF data.
- As with any study that uses secondary data, there are risks related to variables that were included that were not part of the study but may have skewed the findings; also, prison administration completed the CCF survey, which may have biased the data.
- The findings are correlational, not causal, as the data were from a cross-sectional sampling design.

Commentary: Additional data analysis relative to the deprivation and importation model measures were reported. The author notes that policy implications are evident in light of the study's findings relative to decreasing prison population, increasing programming, and review of the current classification systems that place high percentage of inmates in higher security settings. Also, level of security setting and the concept of deprivation as correlates should be reexamined; effects of deprivation on inmates needs to be considered relative to mental health and suicide rates; possible elimination of supermaximum facilities; and additional suicide prevention training for prison staff are all areas for further consideration and study.

Full article available at: http://www.sciencedirect.com/science/article/pii/S0047235210001194