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hereby submit this work as part of the requirements for the degree of:
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in:

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Maintaining Prison Order: Understanding Causes of Inmate
Misconduct Within and Across Ohio Correctional Institutions

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ABSTRACT

The priority that prison administrators place on promoting orderly and safe institutions has generated numerous studies of the correlates to inmate deviance (disorder). These studies have revealed that inmate characteristics, features of facility environments, and management practices are all potentially relevant to an explanation of inmate deviance, suggesting that properly specified models should include measures of concepts from each of these three predictor domains. Determination of the relative effects of both inmate and facility characteristics which depict characteristics of inmates, facility environments, and managerial practices is important for improving the safety of both inmates and staff, not to mention informing theories of prison disorder. Related specifically to management practices could be how inmates perceive the rules designed to maintain facility order and the correctional staff who enforce them. That is, whether inmates perceive the rules of a correctional facility and its staff as legitimate. Whether inmates perceive the rules of a facility and its staff as legitimate could be linked to the odds of misconduct via inmate (dis)respect toward authority. Despite the theoretical and policy relevance, however, this particular issue has received little empirical attention. This study involved an examination of the relative effects of measures of inmate characteristics, features of facility environments, and managerial practices, including the perceived legitimacy of the correctional staff, on both the prevalence and incidence of violent, drug, and other nonviolent misconduct. These processes were examined within and across all the correctional facilities for adults in Ohio. Findings revealed that predictor variables depicting characteristics of inmates, facility environments, and management, as well as the perceived legitimacy of the correctional staff were all relevant to an explanation of prison disorder. In light of the findings, a theoretical model is outlined which can incorporate concepts depicting characteristics of inmates, facility environments, and managerial practices.

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Chapter 1

INTRODUCTION

One of the most amazing things about prisons is that they “work” at all. Any on-going prison is made up of the synchronized actions of hundreds of people, some of whom hate and distrust each other, love each other, fight each other physically and psychologically, think of each other as stupid or mentally disturbed, “manage” and “control” each other, and vie with each other for favors, prestige, power, and money. Often the personnel involved do not know that they are in conflict, do not know with whom they are competing or cooperating, and are not sure whether they are the managers or the managed. Despite these conditions, however, the social system which is a prison does not degenerate into a chaotic mess of social relations which have no order and make no sense. Somehow the personnel, including prisoners, are bound together enough so that most conflicts and misunderstandings are not crucial-the personnel remain “organized” (Cressey, 1961: 2-3).

Cressey’s (1961) observation permits a view of prisons as microcosms of the larger society in which they are situated in much the same way as other social institutions (e.g., neighborhoods, schools). Cressey (1961) also observed that despite their structure, purposes, and the individuals within them, prisons exhibit a social order (see also Bottoms, 1999; Carrabine, 2005; Sparks, Bottoms, and Hay, 1996; Sykes, 1958).

The Hobbesian ([1651] 1962) problem of why individuals submit to governance by social norms and rules that allow a lasting society is one that is particularly vexing when applied to prisons. Prisons forcibly confine the individuals who have already broken the rules that govern society. Prisons subject these individuals to rule and regulation by which they are not accustomed. Still, prisons, for the most part, are not characterized by constant turmoil, anomie, or a “war of all against all” (Carrabine, 2005; Sparks et al., 1996; Sykes, 1958). Much like other social institutions, prisons maintain a level of order. Yet the level of order varies considerably between prisons (Bottoms, 1999; DiIulio, 1987; Sparks et al., 1996).

Consistent with findings from other prison studies (e.g., DiIulio, 1987; Sparks et al., 1996), interviews with wardens conducted during this study revealed that “good order” in prison is generally considered to be the smooth operation of the “daily routine.” The daily routine is often facility specific, but generally consists of long standing patterns of social relations where participants have common expectations as well as a typical level of inmate involvement in work assignments, education, rehabilitative programming, and the like (see also Bottoms, 1999; Sparks et al., 1996). Inmates are expected to follow the facility’s rules and staff are expected to adhere to the institution’s policies. By contrast, “disorder” is situations, incidents, or conditions that pose a threat to the smooth operation of prisons because they disrupt the daily routine. Inmate misconduct or prison rule violations may challenge the orderly operation of a correctional facility (Bottoms, 1999; DiIulio, 1987; Reisig, 1998). As one experienced warden put it “inmate misconduct is the root of all evil”.

This study is about understanding differences in the level of (dis)order within and across prisons. As noted above, prisons vary in their level of order, but variation in orderliness also exists between inmates. Many inmates do their time without incident. Other inmates occasionally commit misconduct, while some inmates habitually violate facility rules. Studying misconduct as an indicator of disorder permits examination of differences in the influences of disorder between facilities and also within them (i.e., between inmates). Studying misconduct as an indicator of order allows us to answer questions not only regarding why some facilities have more deviance than others, but also why some inmates comply with facility rules when others do not.

The priority that facility administrators place on promoting order and safety has generated numerous studies of the correlates to misconduct, and scholars have generally relied on three perspectives when framing potential predictors. Deprivation theory suggests that inmate

behaviors are manifestations of how inmates adapt and cope with the “pains” inflicted by the prison environment, whether through participation in a social system that helps to reduce these deprivations (Clemmer, 1940; Sykes, 1958), or through individual level choices that help to facilitate need satisfaction (Goodstein, MacKenzie, and Shotland, 1984; Goodstein and Wright, 1989). Drawing from this perspective, scholars have emphasized the relevance of environmental features (e.g., crowding, security level) of facilities for understanding inmate deviance (e.g., Cao, Zhao, and Van Dine, 1997; Lahm, 2008; Thomas, 1977).

In contrast to deprivation theory, importation theory holds that prisons are not completely closed systems and that inmate behaviors are shaped primarily by individuals’ pre-institution characteristics, attitudes, and experiences (Irwin and Cressey, 1962; Irwin, 1980). In related studies, prediction of inmate behavior has been improved by knowing individual-level characteristics of inmates (e.g., age, race, criminal history), often framed within the importation theory of inmate behavior (e.g., Bottoms, 1999; Cao et al., 1997; Goetting and Howsen, 1986; Harer and Steffensmeier, 1996).

Management perspectives (e.g., administrative control, inmate balance), on the other hand, de-emphasize variations across facility environments and inmates, suggesting that inmate behaviors are primarily the result of differences in facility management practices (Camp, Gaes, Langan, and Saylor, 2003; Colvin, 1992; DiIulio, 1987; Useem and Kimball, 1989; Useem and Reisig, 1998). Researchers adhering to management models have revealed that factors that depict styles of managing inmates (e.g., use of disciplinary housing or facility programming) are related to levels of misconduct (e.g., Camp et al., 2003; Huebner, 2003; Useem and Reisig, 1998).

Each of these perspectives has ascertained empirical support in related studies, although researchers who have examined variables from several of these domains (individual

characteristics, environmental characteristics, and management practices) have revealed that predictors from each of them is relevant to an understanding of inmate deviance (e.g., Camp et al., 2003; Cao et al., 1997; Gillespie, 2005; Huebner, 2003; Jiang and Winfree, 2006; Lahm, 2008; Steiner and Wooldredge, 2008a; Steiner, 2009; Wooldredge, Griffin, and Pratt, 2001). Even though practitioners and academics recognize the potential influence of inmate, environmental, and management characteristics on the types and magnitude of inmate deviance (e.g., Bottoms, 1999; Goodstein and Wright, 1989; Wooldredge, 1991), only recently have researchers begun to reliably examine the relative influences of these multiple levels of factors (Camp et al., 2003; Huebner, 2003; Jiang and Winfree, 2006; Lahm, 2008; Steiner and Wooldredge, 2008a; Wooldredge et al., 2001; Wooldredge and Steiner, 2009). These few studies to date have provided evidence that inmate, environmental, and management characteristics are significant predictors of inmate deviance, suggesting that properly specified models should include predictors from all three domains. Estimation of such models can help pin-point the strongest effects on misconduct at both the inmate- and facility-levels of analysis, so as to inform correctional administrators how they might assess the magnitude of the problem in their own facilities and derive more practical methods for reducing the problem. Identification of the strongest effects on inmate deviance could also assist in determining the adequacy of existing theories of prison disorder and help shed light on which concepts should be included in theoretical models. To date, a conceptual framework which includes variables depicting all three elements has not emerged (Byrne, Hummer, and Taxman, 2008), and so studies which involve the reliable estimation of the relative effects of predictors derived from all three domains could aid in the development of such a framework. One of the objectives of this study is examine the

relevance of individual, environmental, and management characteristics for predicting inmate misconduct.

Linking the Micro and Macro Dimensions of Prison Management

A policy-relevant theme emerging from the research on inmate deviance is that levels of misconduct vary across facilities, and management practices help to shape these differences (Bottoms, 1999; Camp et al., 2003; DiIulio, 1987; see also Useem and Kimball, 1989, for their organizational perspective on prison riots). The sole focus of the existing quantitative studies on modalities of institutional management has necessarily restricted analyses to the facility-level, although some researchers have controlled for compositional differences in inmate populations at the individual-level (e.g., Camp et al., 2003; Huebner, 2003). Difficulties faced by researchers when conducting related studies have forced them to either examine indirect measures of prison management, such as the racial and gender composition of the staff (e.g., Camp et al., 2003; McCorkle, Miethe, and Drass, 1995), or to examine survey data on managerial practices obtained from facility administrators (e.g., Reisig, 1998; Useem and Reisig, 1999). Still, these studies have uncovered that there are differences in how prisons are managed and such differences influence the level of disorder across facilities. It could be, however, that it is the normal everyday encounters between line-level correctional officers and inmates which have the most influence on inmate compliance and facility order (Bottoms, 1999; Sparks et al., 1996; Vuolo and Kruttschnitt, 2008). In other words, fundamental to the potential link between management practices and order maintenance could be the manner in which inmates are supervised as well as how instances of misconduct are handled (Bottoms, 1999; DiIulio, 1987).

Practitioners and academics have suggested that the handling of inmate misconduct can affect the odds of subsequent misconduct and the overall stability of the facility environment

(Bottoms, 1999; Clemmer, 1940; DiIulio, 1987; Hepburn, 1989; Irwin, 1980; Lombardo, 1989; O'Donnell and Edgar, 1998; Sparks et al., 1996; Sykes, 1958). How misconduct is handled within penal institutions may influence inmates' perceptions regarding the legitimacy of the correctional staff's authority and, in turn, the ability of staff to gain inmate compliance (Bottoms, 1999; DiIulio, 1987; Hepburn, 1985; Irwin, 1980; Lombardo, 1989).

Perceptions of authority as "legitimate" require that the actions of officers and administrators are just or "fair" (i.e., their actions must be morally justifiable to inmates under their supervision) (Bottoms, 1999; Sparks et al., 1996). This "normative perspective" focuses on the influence of what people regard as just and moral as opposed to what is in their self-interest (Tyler, 1990). It examines the connection between normative commitment to legal authorities and law-abiding behavior, focusing on an individual's experiences with justice. A normative perspective on prison discipline assumes that legitimacy is achieved by a consistent and fair application of the rules which, in turn, may influence inmate compliance (Bottoms, 1999; DiIulio, 1987; Hepburn, 1985; Irwin, 1980; Lombardo, 1989). Yet despite supportive findings from ethnographic studies of prison environments (e.g., Clemmer, 1940; Irwin, 1980; Liebling and Price, 1999; Sparks et al., 1996) and emerging evidence in policing and courts research (e.g., Casper, Tyler, and Fisher, 1988; Paternoster, Brame, Bachman, and Sherman, 1997; Tyler, 1990), there are no quantitative evaluations of the applicability of this perspective to prison officials' handling of inmate misconduct. Few quantitative studies have even considered the effects of inmates' perceptions of staff on inmate behavior (see, e.g., Vuolo and Kruttschnitt, 2008; Wooldredge, 1994). This study will examine the normative perspective of order maintenance by considering the micro-level effect of perceived legitimacy of the correctional staff on prison disorder as well as more

commonly examined macro-level predictors of inmate deviance drawn from existing perspectives on inmate management.

The Plan of the Dissertation

In an effort to ground the study within a broader literature, the study will begin with a discussion of the problem of order in the prison context. Particular attention will be paid to how order is conceptualized in the institutional environment. I then offer a discussion of the existing perspectives on inmate deviance and a working model recently developed by Bottoms (1999) which includes the concept of perceived legitimacy of correctional staff. Next, I review the empirical evidence regarding what factors influence indicators of prison disorder.

A research design and analytical strategy is then detailed that will examine the relative effects of inmate, environmental, and management characteristics (including perceived legitimacy of the staff) on inmate misconduct. These processes will be examined within and across 33 correctional facilities for adult males and adult females in Ohio. After discussing the findings in light of the existing research, I offer a strategy for considering the relevant predictors of disorder under a unified theoretical framework.

Chapter 2

PRISONS AND THE PROBLEM OF ORDER

In the state of nature, Hobbes ([1651] 1962) argued that human beings are capable of avoiding the “war of all against all” because they differ from other animals by their capacity to reason. Reasoning permits humans to come together and form a social contract in which they surrender their freedom to use force and fraud in their relations with others in the pursuit of a common goal (i.e., to live in an orderly society). However, individuals recognize that a common interest to forego force or fraud will not prevent some individuals from engaging in such activities. Therefore, the social contract also bestows in one person or group (e.g., the state) the exclusive authority to use coercion to maintain order by restraining deviant individuals from resorting to force or fraud in pursuit of their individual wants (Hobbes, [1651] 1962).

The Hobbesian question of why individuals are capable of guidance by the social norms and goals that make possible an enduring society has generated a considerable amount of research and related discussion regarding societal order in sociology (see, e.g., Parsons, 1949; Wrong, 1961, 1994). Also following from Hobbes, psychologists have offered related perspectives on obedience (e.g., Milgram, 1974) and organizational researchers have developed theories of compliance (e.g., Etzioni, 1961). Due to the focus of this study on order in prisons, an extended treatment of the “problem of order” in other societies is not provided here (for excellent overviews, see Ellis, 1971; Parsons, 1949; Wrong 1994). Suffice it to say, however, that the range of predictors that will be examined in this study incorporate aspects of the exchange, coercive, and normative solution to the problem. The exchange solution suggests that functional interdependence creates mutually beneficial reciprocity relations that would be threatened by the

use of force and fraud (Ellis, 1971; Kornhauser, 1978; Wrong, 1961). In the coercive solution, conformity to the norms of a society is based on fear of a strong sanctioning system (Hirschi, 1969; Hobbes, [1651] 1962; Kornhauser, 1978). According to the normative perspective, order is achieved by value consensus and by individuals' need to win approval by conforming to shared norms and beliefs, regardless of their self interests (Parsons, 1949; Kornhauser, 1978; Wrong, 1961).

A discussion of a "social order" in prisons is potentially paradoxal, in that prisons are institutions that confine (through force) individuals who have violated the laws that bind the larger society together. Once inside prisons, individuals become inmates who are subjected to rule and regulation largely defined by correctional staff. Given such conditions, "consensual authority" on the part of the inmates seems unlikely. Yet despite the fact that inmates have violated the laws of larger society, they still share a basic need to feel safe and secure (Irwin, 1980; Irwin and Cressey, 1962; Toch, 1977). The inmates' need for safety and security forms the basis for agreement regarding which actions can threaten their well-being. In order to feel safe and secure, inmates recognize that some minimum rules prohibiting these acts are required. Thus, the consensus among the confined about the necessity of many of the facility rules reflects agreement regarding the value of living in a safe and orderly environment. The agreement regarding the importance of an orderly environment by inmates and the staff constitutes a shared goal, although one potentially motivated by different reasons (Irwin and Cressey, 1962; Ramirez, 1984; Wheeler, 1961a). Accordingly, a position that prison order is only achieved by persistent threat of or use of force neglects the many variations in the social organization of contemporary penal institutions (Carrabine, 2005; Sparks et al., 1996). Similar to communities in larger society (see, e.g., Etzioni, 1996; Kalinich, Stojkovic, and Klofas, 1988), prison communities possess

webs of implicit relations among their members (inmates and staff), relations that often crisscross and reinforce one another; and, prisons enjoy a commitment among their members to a shared culture (i.e., values, norms) (Byrne et al., 2008; Clemmer, 1940; Irwin, 1980; Kalinich et al., 1988; Sykes, 1958). If prisons are communities, albeit perhaps special ones, then like other communities, prisons exhibit a degree of order (Bottoms, 1999; Sparks et al., 1996). Much like communities, prisons vary in their level of order (Bottoms, 1999; DiIulio, 1987; Reisig, 1998; Sparks et al., 1996). An objective of this study is understanding variation in the level of order within and between prisons, and prison order (as described below) will necessarily be influenced by the level of obedience or compliance with the norms and rules of the facilities in which the staff work and the inmates are confined.

Interviews conducted with wardens during this study revealed that “good order” in prison is generally considered to be the smooth operation of the “daily routine” or “schedule.” Other ethnographic studies of prisons have reached similar conclusions (e.g., DiIulio, 1987; Sparks et al., 1996). The daily routine or schedule is, of course, facility specific, but it generally consists of long standing patterns of social relations where participants have common expectations (e.g., chow is at 11:30) as well as a typical level of inmate involvement in work assignments, education, rehabilitative programming, and so forth (see also Bottoms, 1999; Sparks et al., 1996). Inmates are expected to follow the facility’s rules and staff are expected to adhere to the institution’s policies. For example, during the course of the fieldwork conducted for this study we were often inside housing units in the late morning when lunch was typically scheduled. As lunch time drew near, inmates would generally congregate near the door in anticipation of the correctional officer’s call for “chow.” Paraphrasing one correctional officer...”things can get a little crazy around here when chow is delayed.” A warden observed “if scheduled functions do

not go as scheduled, things are going to happen...it is a correctional facility.” In contrast to order, then, “disorder” is situations, incidents, or conditions that pose a threat to the smooth operation of prisons because they disrupt the daily routine. Inmate misconduct or prison rule violations can challenge the orderly operation of a correctional facility. As one warden observed, “an incident of misconduct can impact everything you are striving to accomplish with your team because of everything that goes along with it.” Another experienced warden put it more succinctly, “inmate misconduct is the root of all evil.”

The American Correctional Association (ACA) standards and guidelines for rules and discipline in a correctional facility recommend that:

the rules should prohibit only observed behaviors that can be clearly shown to have a direct, adverse effect on an inmate or on institutional order and security (ACA 4-4226, 2003).

The Ohio Administrative Code section pertaining to inmate rules of conduct (see Appendix 1) defines disciplinary violations as:

acts that constitute an immediate and direct threat to the security or orderly operation of the institution, or safety to its staff, visitors, and inmates as well as other violations of institutional or departmental rules and regulations (Ohio Administrative Code, Section 5120-9-06, 2007).

Perhaps following from these or related definitions, researchers have generally measured the level of prison order negatively (disorder). Useem and Piehl (2006) considered riots, inmate and staff homicides, escapes, suicides, assaults on inmates and staff, disturbances, and inmates in protective custody indicators of disorder. DiIulio (1987) focused on the level of riots, assaults, homicides, escapes, and suicides. Reising (1998) created one factor (less serious disorder) including facility levels of noise, destruction of property, inmate assaults (minor and serious), violence without injury, inmate disobedience, and inmate on staff violence and another factor (serious disorder) that included escapes, homicides, and forcible rapes. Even though it is

generally agreed that disorder is a broad concept inclusive of many of the indicators discussed above (see also Sparks et al., 1996), use of some of these measures (e.g., riots) necessarily restricts analyses to the aggregate level. I have argued, however, and the subsequently discussed empirical evidence will demonstrate, there are differences between the individuals housed in prisons which influence the likelihood of events that threaten good facility order. Failure to account for such differences could lead to model misspecification. Accordingly, a more thorough understanding of influences of prison disorder may be gained by examining an outcome or outcomes that can be modeled at multiple levels of analysis. For this study, disorder will be conceived of as the level of inmate misconduct (crimes and rule infractions). The level of misconduct varies across facilities (Carrabine, 2006; Camp et al., 2003; Sparks et al., 1996; Steiner and Wooldredge, 2008a; Wooldredge et al., 2001), but the level of misconduct also varies across individuals. That is, some inmates commit misconduct, while others do not (Camp et al., 2003; Steiner and Wooldredge, 2008a; Wooldredge et al., 2001). Other inmates commit many rule infractions, while others commit very few (Huebner, 2003; Jiang and Winfree, 2006).

Traditional Explanations of Prison Disorder

The following discussion highlights the relevant frameworks that have emerged from studies of inmate deviance/prison disorder. The purpose of this discussion is to trace the development of knowledge regarding the sources of prison disorder and recognize the major contributions to this body of research. No claims are made regarding the exhaustiveness of this discussion; however, the perspectives that are outlined here have generally been recognized in other reviews of related literature as the prevailing theories of inmate behavior (see, e.g., Goodstein and Wright, 1989; Kruttschnitt and Gartner, 2005; Sparks et al., 1996; Wooldredge, 1991).

Environmental Influences on Inmate Behavior

Early ethnographic studies of inmate adaptation to imprisonment underscored the relevance of environmental “deprivations” suffered by inmates as the result of their incarceration. These scholars argued that inmates avoid the “war of all against all” by forming a social system which isolates them from the harshness of the prison environment (e.g., Sykes and Messinger, 1960). For example, Clemmer’s (1940) perspective on inmate assimilation (‘prisonization’) dealt with the Marxian view that a society’s economy, and corresponding cultural attributes such as language, norms, and stratification system, are shaped by the physical environment and its available resources for human survival. When placed in an environment with more restrictions on personal freedoms (e.g., prison), individuals will adapt to these restrictions using available resources. A value system emerges which strengthens inmate solidarity and insulates them as a group from administrators and staff. Stratification systems develop to provide materials and services denied by the administration (e.g., alcohol, drugs, weapons, sex, legal advice, protection), aided in part through a barter economy based on items more readily available to inmates within the facility (such as cigarettes). Inmates, as well as correctional staff, fall into established patterns of interaction and therefore the systems of working, disciplining, and living within an institution remain stable, despite an ever changing prison population (Clemmer, 1940).

Following from Clemmer (1940), Sykes (1958) provided a social psychological perspective of inmate adaptation, recognizing that incarceration coincides with specific environmental and psychological deprivations. Once sentenced to prison, inmates are deprived of particular rights such as autonomy, freedom of movement, access to goods and services, heterosexual relationships, and security. Adopting a functionalist perspective, Sykes (1958) observed that these “pains of imprisonment” provide the energy for the society of captives as a system of

action. The social system that emerges serves to mitigate the rigors of confinement. Differences in behaviors between inmates were explained by how these pains of imprisonment were felt, which provided greater insight into why some inmates may be more central or peripheral to a culture and the various roles they adopt for survival. Differences in how individuals prioritize their needs can result in differences regarding institutional adaptation, depending on particular environmental characteristics and the degree to which they inhibit satisfaction of each need. For example, some inmates took on a role of the “gorilla” and sought to overcome deprivations at the expense of other inmates (Sykes, 1958; Sykes and Messinger, 1960). Thus, deprivation theory holds that some inmates, when placed in an environment that denies them access to the means of satisfying certain needs, may seek illegitimate alternatives to need satisfaction (Clemmer, 1940; Sykes, 1958; Sykes and Messinger, 1960).

Deprivation theory incorporates the normative and exchange solutions to the problem of order. The normative solution can be found in the inmates’ adherence to the inmate code which regulates the inmate subculture and informally controls the inmates’ behaviors. Regardless of their individual needs and wants, inmates conform to the inmate code in order to facilitate adaptation to the environmental conditions imposed by incarceration (Sykes and Messinger, 1960). The exchange solution is located in the role of the prison staff. In order to maintain an acceptable level of order correctional staff overlook many of the minor transgressions perpetrated by the inmates which help to sustain the inmate social system. Although correctional staff are aware of such behaviors, many of which are in violation of the facility rules, they are willing to excuse them in exchange for the level of compliance that is achieved by sustaining the inmate society (Sykes, 1958).

The ‘deprivation’ perspective (Clemmer, 1940; Sykes, 1958; Sykes and Messinger, 1960) discussed above might not be particularly applicable today because many of the environmental deprivations these scholars described have been reduced considerably due to the inmate rights movement (Jacobs, 1980) and the evolution of prisons from closed to more open systems (Farrington, 1992; Irwin, 1980; Jacobs, 1977). The inmate rights movement also disrupted the balance of power between correctional staff and inmates by forcing staff to adhere to some basic procedures when handling noncompliance with facility rules. These legally driven changes forced a greater reliance on methods of formal control and deteriorated the reciprocal exchange of power between staff and inmates in many facilities. For example, Marquart and Roebuck (1985) discussed how *Ruiz v. Estelle* ended Texas prison officials’ reliance on a “building tender” system. Under this system, inmate leaders called building tenders were permitted certain extra privileges in exchange for informally settling many of the mundane problems of prison life. After *Ruiz*, prison officials were given sole responsibility for order maintenance which decreased social distance between the inmates and staff, predictably increasing the level of official deviance (Marquart and Roebuck, 1985; Marquart and Crouch, 1985).

The inmate rights movement also drew more attention to environmental conditions that potentially impact the lives of inmates, and scholars still recognize the importance of environmental influences on need satisfaction and inmate adaptation. Toch (1977), Goodstein et al. (1984), and Wright (1985, 1991, 1993) have discussed the psychological aspects of adaptation, with a more specific focus on inmate needs and the consequences of inhibiting need satisfaction. For example, Goodstein et al. (1984) underscored the relevance of an inmate’s need for “personal control” over their environment. Prison environments which limit outcome control, choice, or predictability (personal control) may interfere with an individual’s ability to cope with

their surroundings and elicit maladaptive responses (Goodstein et al., 1984; Goodstein and Wright, 1989; MacKenzie, Goodstein, and Blouin, 1987; Ruback and Carr, 1984; Ruback, Carr, and Hopper, 1986).

More recently, Wooldredge (1991, 1994) emphasized the relevance of environmental conditions and “lifestyle” variables (e.g., hours in recreation) for their influence on opportunities for inmates to engage in deviance. Lifestyle variables are measured at the inmate-level but still may shape inmates’ subjective view of their environment. The opportunities for some lifestyles are also influenced by the environment of the facilities in which the inmates are confined. Some restrictions on opportunities for deviance in prisons could be considered aspects of formal control because they result from actions of the state (e.g., facility architecture). Opportunities for deviance can also be restricted by the facility staff (e.g., segregation). On the other hand, some environmental conditions can enhance opportunities for misconduct because they weaken sources of both informal and formal control (e.g., crowding) (Wooldredge et al., 2001).

Differences between Inmates as a Source of Inmate Behavior

The deprivation perspective discussed above has been criticized because it places too much importance on structural deprivations resulting from incarceration (e.g., Irwin, 1970; Irwin and Cressey, 1962; Jacobs, 1976). For example, Irwin and Cressey (1962) argued that the inmate social system was in part a reflection of a larger criminal subculture that was not indigenous to the prison environment. Irwin and Cressey (1962) did not disagree that the total set of relationships referred to as the inmate social system was a response to imprisonment. They maintained, however, that inmates’ solutions to the problems of imprisonment were not found within the institution, but instead were a manifestation of latent culture or pre-incarceration experiences. Therefore, the importation perspective holds that inmates with values and beliefs

endorsing or tolerating deviant behavior may be more likely to engage in rule breaking while they are incarcerated (Irwin, 1980; Irwin and Cressey, 1962).

The importation perspective was initially criticized because it placed too much emphasis on pre-prison characteristics, experiences, and values; in turn, downplaying the relevance of environmental conditions and prison administration (see, e.g., Roebuck, 1963). However, in the 1960s and 1970s when the inmate rights movement reduced many of the differences in environmental conditions between prisons and introduced legal obstacles to prison administrators' abilities to exercise particular mechanisms of formal control (e.g., limits on punitive segregation and the abolition of corporal punishment), scholars reemphasized the relevance of individual-level differences for understanding differences in prison rule breaking (e.g., Carroll, 1974; Irwin, 1980; Jacobs, 1977). The inmate rights movement also coincided with the dramatic rise in the incarceration rates of minorities (see Blumstein and Beck, 1999; Mauer, 2006), and so these discussions often centered on the potential influence of racial and ethnic differences between inmates.

Jacobs (1977), Carroll (1974), and Irwin (1980), for example, have offered related discussions of how the increase in the incarceration rates of minority inmates, when coupled with the weakening of formal controls, allowed racial tension to become an important influence on levels of conflict in state prisons. Stratified subcultures (often based on race and ethnicity) which existed in urban areas also emerged inside prisons and contributed to conflict between inmates (Irwin, 1980; Jacobs, 1976; Jacobs, 1977). Conflict between staff and inmates also escalated, as the growing numbers of non-White inmates from urban areas were also subjected to control and supervision by guards who were predominately White and often from rural areas (Camp et al., 2003; Irwin, 1980, 2005; Jacobs and Kraft, 1978). The cultural differences between the non-

White inmates from urban areas and White guards from rural backgrounds obstructed communication patterns stimulating tensions between inmates and staff (Carroll, 1974; Jacobs, 1977; Jacob and Kraft, 1978). As a result of these processes, the 1960s and 1970s was a period of heightened violence for many prisons (Colvin, 1992; Irwin, 1980, 2005).

In its original form (Irwin and Cressey, 1962), importation theory can be considered a cultural deviance model. Irwin and Cressey (1962) divided inmates into one of three subcultures: thief, convict, and legitimate. Behavior patterns were explained in terms of which subculture the inmate aligned with. Cultural deviance theories rely on the normative solution to the problem of order, although some scholars have suggested that the theory cannot explain order. Kornhauser (1978: 44), for example, observed that “since cultural deviance theory affirms that total consensus is the sole basis of order and denies that there is any consensus, especially about law, in modern societies, the theory cannot explain order in modern society.” However, other scholars (e.g., Matsueda, 1988) have disagreed with this interpretation suggesting that societies are not so conflict ridden as to preclude some consensus. Irwin and Cressey (1962) follow in this line of thinking by observing that although there is some conflict that results because of the vast disparity in some of the values of the different inmate subcultures, the subcultures do share other values, most notably maintaining the status quo. Here, Irwin and Cressey (1962) seem to align with the exchange solution by suggesting that the total inmate culture represents an adjustment or accommodation of the three subcultures within the official administrative system.

Cultural deviance models have been criticized for their conceptual complexity and because they cannot be falsified (Hirschi, 1969; Kornhauser, 1978). Similar problems exist for importation theory. In fact, I am not aware of any direct tests of the subcultural aspect of importation theory (see also Lahm, 2008). Yet the ideas put forth in the importation perspective

do permit the testing of specific hypotheses about the relevance of pre-prison characteristics for explaining inmate behaviors. Thus, regardless of the limitations of the perspective, Irwin and Cressey (1962), and subsequently Carroll (1974) and Jacobs (1977), drew attention to considering differences between individuals even if they were not cultural differences *per se*.

Management Perspectives

In addition to the deprivation perspective outlined above, Sykes (1958) also provided a theory of inmate collective action (e.g., riots). Sykes (1958) concluded that the riot at the New Jersey State Prison where he was conducting his fieldwork occurred as a result of administrative actions (e.g., crackdowns) that affected the distribution of benefits to the leaders of the inmate social system. Once the equilibrium of the social system was upset, the inmate leaders' ability to control the other inmates was considerably undermined. As a result, more inmates adopted other social roles many of which included the use of deviance in pursuit of their individual self interests. Under such conditions, the prison was more likely to experience collective action (Sykes, 1958). Inmate balance theory, therefore, predicts that inmate disturbances are a reaction to a disruption of the inmate social system, which results from prison management taking abrupt actions to re-establish control (Colvin, 1992; Sykes, 1958). Inmate balance theory incorporates the exchange solution to the problem of order. Disorder is explained as a reaction to disruption (e.g., crackdown) of the established exchange relations between the inmates and the correctional staff. Sykes's (1958) management perspective has been used to explain not only riots, but other forms of violence and collective action (see, e.g., Useem and Reisig, 1998).

In contrast to inmate balance theory and other sociological explanations of prison deviance (e.g., importation and deprivation), DiIulio (1987) offered a managerial perspective to explain differences in order between prisons. Observing variation in eight interrelated features that were

common to models of prison management (organizational communication, personal relations, inmate/staff communication, discretion, regimentation of inmate lives, response to inmate rule violations, response to inmate disruptiveness, and inmate participation in decision-making), DiIulio (1987) classified prison managerial styles into three different models, the control model, the consensual model, and the responsibility model. The control model adheres to a correctional philosophy which emphasizes inmate obedience, work, and education, in that order. Each facility is run as a maximum-security facility. The responsibility model emphasizes procedures that maximize inmates' responsibility for their own actions. This approach uses classification to fit inmates into the least-restrictive setting. Lastly, the consensual model relies on informal discipline and classification, but allows for grievance procedures. The emphasis is on less restriction rather than more, although there is substantial intersystem variation. Prison governance is often shaped by the population composition of the governed (DiIulio, 1987).

DiIulio's (1987) ethnographic case study of the Texas, California, and Michigan penal systems revealed that the control model of facility management (Texas) achieved the most orderly prisons. Consistent with the coercive solution to the problem of order, administrative control theory predicts that disorder is the result of inadequate or weak facility management. As suggested by Useem and Kimball (1989) in their application of this perspective to prison riots, under periods of administrative breakdown, inmates come to believe that their conditions of confinement are unjust. Correctional officers and prison supervisors begin to neglect various day-to-day security measures, allowing the formation of inmate groups, which may mobilize collective action.

Both the inmate balance and the administrative control perspectives have ascertained at least some empirical support in prior studies of prison disorder. With regard to riotous violence,

however, scholars have noted that neither of these perspectives has been able to account for the range of factors leading to collective action across all cases (see, e.g., Carrabine, 2005; Useem and Goldstone, 2002; see also Bottoms, 1999, for a review of the broader inmate violence literature). Even though it has been argued that these theories seemingly predict in the opposite direction (see, e.g., Useem and Reising, 1999), they actually share many common elements. Both theories underscore the relevance of organizational change, contradictory goals, disorganization, and inconsistency in rule enforcement for understanding inmates' behavior. Both theories suggest that these factors contribute to inmates' perceptions of injustice, which in turn, may fuel conflict. It could be that inmates' perceptions of injustice and their belief in the legitimacy of the rules and the authority of those who enforce them are the driving forces that contribute to disturbances and conflicts. Similar observations have been made by researchers of inmate deviance and collective disturbances in European prisons (see, e.g., Carrabine, 2005; Sparks, 1994; Sparks and Bottoms, 1995; Sparks et al., 1996).

Colvin (1992) also underscored the relevance of disorganization, inconsistent rule enforcement, and change in managerial approaches. Drawing from organizational theories of compliance, Colvin argued that the 1980 riot at the New Mexico State Penitentiary occurred primarily because of a managerial shift from reliance on remunerative to coercive means of controls. As a result, inmate leaders who had assisted the administration in maintaining order were removed from their positions of power, creating a disruption in the inmate social system. Colvin's (1992) account of the New Mexico riot can be viewed as evidence in support of inmate balance theory. However, the more important contribution of Colvin's work may be his observations regarding the different types of strategies prison staff may use to formally control inmate behavior. Both remunerative and coercive controls are formal means used by staff to

control inmates' behavior. Remunerative controls, however, function as incentives for inmates to comply with facility rules (e.g., work assignments), whereas coercive controls isolate and alienate inmates who do not comply with the rules (e.g., segregation).

The tenets of administrative control theory are consistent with the coercive solution to the problem of order. Inmate balance theory is generally consistent with the exchange solution. The broader implication of Colvin's (1992) work could be the integration of the two perspectives. Even though Colvin (1992) documents the switch from primarily remunerative controls to strictly coercive controls as the primary cause of the New Mexico riot, he observed that both types of control were used by prison officials during the period of order in New Mexico. Thus, both types of controls can be used in conjunction with one another to achieve order, although Colvin (1992) advocated for a greater reliance on remunerative controls. Absent from Colvin's (1992) conclusions, however, may be the potential relevance of the normative solution to the problem. It could be, for example, that the inmates' inability to realize common goals also influenced the likelihood of the riot (see, e.g., Useem, 1985).

Colvin (1992) described how the inmates in the New Mexico State Penitentiary had come together in a sit down strike and attempted to air their concerns peacefully prior to the riot. Yet when the prison officials responded by ignoring the inmates' concerns and applying a greater use of coercive controls to break apart the inmate organization, the prison became disorganized. Inconsistency in rule enforcement increased, further alienating the inmates from the staff (see also, Colvin, 2007). Unable to realize common goals and cynical in their beliefs regarding the legitimacy of the rules and the staff, the inmates rioted (Colvin, 1992). Towards the end of his study, Colvin (1992) attributed a period of reduced violence after the riot to the consistent application of specific procedures for inmate discipline, security, and staff training which were

ordered by the federal court. It could be that the increased consistency in rule enforcement may have influenced the inmates to become less cynical regarding their beliefs concerning the legitimacy of the rules and the staff. If more inmates perceived the rules and staff as legitimate, then they may have been more likely to comply with the facility rules because their beliefs regarding the moral validity of the formal mechanisms of control may have served to strengthen their tie to the conventional order. Colvin (2007) has since recognized the potential validity of these ideas in his application of differential coercion and social support theory to the New Mexico riot.

Mixed Models

Prisons are social institutions much like neighborhoods, cities, or schools. There are differences between the individuals contained within prisons and aggregate-level differences across prisons, both of which make up its total social organization. If an outcome has both a micro- and a macro-level dimension (e.g., misconduct), failure by a theory to recognize and attempt to explain the differences at either the individual- or aggregate-level necessarily ignores a significant portion of variation in that outcome (Steiner and Wooldredge, 2008a). This is not to say that the contributions of single-level theories and related studies are unimportant, but that findings from those studies should be considered in light of relevant effects that might have been ignored at either the micro- or macro-level.

Recognizing the potential deficiencies in single level theories, prison scholars have begun to consider the relative effects of both inmate-, facility-, and state-level effects on misconduct (e.g., Camp et al., 2003; Dhimi, Ayton, and Loewenstein, 2007; Huebner, 2003; Jiang and Winfree, 2006; Kruttschnitt and Gartner, 2005; Lahm, 2008; Steiner, 2009; Steiner and Wooldredge, 2008a; Wooldredge et al., 2001). Unlike other studies (e.g., Cao et al., 1997; Harer and

Steffensmeier, 1996; Jiang and Fisher-Giorlando, 2002; McCorkle et al., 1995), however, the focus of these multi-level studies has not necessarily been to pit theories against one another, but instead to demonstrate the relevance of multiple levels of factors for predicting misconduct. Very few of these studies have even framed potential predictors within a theory of behavior which could account for influences of deviance at multiple levels of analysis. As such, these studies were limited in that they do not have a guiding framework that can account for all the factors that are relevant to an explanation of prison disorder (but see Jiang and Winfree, 2006; Steiner, 2009; Wooldredge et al., 2001).

A working model of order maintenance in prisons which does include inmate, environmental, and management characteristics has recently been offered by Bottoms (1999). Drawing heavily on ethnographic and case study research carried out in Europe (e.g., Liebling and Price, 1999; Sparks et al., 1996), Bottoms's (1999) model is organized around the concept of staff "legitimacy," or whether inmates perceive the staff as fair, just, and morally valid. Recognizing that staff legitimacy is not the only relevant factor that can influence the level of order in prisons, Bottoms's (1999) model also includes the concepts of power and routines, normative involvement in projects, inmate population characteristics, incentives and disincentives, degree of physical constraint, specific incidents (e.g., riot), and staff deployment, approaches, and skills, the latter of which mediates the effect of all the other concepts. Legitimacy then mediates staff deployment, approaches, and skills, although it also maintains a direct effect on the level of order. Bottoms (1999) noted, however, that his model is a working model requiring testing and refinement.

Bottoms's observations, along with Colvin's (2007) more recent perspective, underscore the potential relevance of the perceived legitimacy of the correctional staff for predicting prison

disorder. Legitimacy can be defined as the belief that authorities (correctional staff), institutions (prisons), and social arrangements (power relations) are appropriate, proper, and just (Tyler, 2006). Legitimacy may be relevant to the prison environment because whether staff are viewed as legitimate by the inmates under their care and supervision may influence whether those inmates comply with the rules the staff are charged with enforcing (Bottoms, 1999; DiIulio, 1987; Hepburn, 1985; Irwin, 1980; Lombardo, 1989). Perceptions of authority as “legitimate” require that the actions of officers and administrators are just or fair (i.e., their actions must be morally justifiable to inmates under their supervision) (Bottoms, 1999; Sparks et al., 1996). This perspective on order maintenance assumes that legitimacy achieves inmate compliance and legitimacy is achieved by a consistent and fair application of the rules (Bottoms, 1999; DiIulio, 1987; Hepburn, 1985; Irwin, 1980; Lombardo, 1989). On the other hand, inconsistent application of rule enforcement can influence perceptions of authority as illegitimate, and in turn, provoke defiance of the rules (Colvin, 2007; Sherman, 1993).

The inclusion of inmates’ perceived legitimacy in a model of prison disorder incorporates the normative solution to the problem of order by permitting consideration of the connection between normative commitment to legal authorities and law-abiding behavior. When individuals view authorities as legitimate it can lead them to feel personally obligated to defer to those authorities even if such deference conflicts with their self interest (Tyler, 1990; Tyler, 2006). Whereas the perspectives of prison management discussed above (e.g., administrative control, administrative balance theory) are macro-level theories, inclusion of perceived legitimacy incorporates a micro-level dimension to the management perspective. Drawing from Bottoms (1999), it may be that it is inmates’ perceptions of staff resulting from their normal everyday encounters with line-level correctional officers that have the most influence on inmate

compliance and facility order (see also Carrabine, 2005; Sparks et al., 1996; Vuolo and Kruttschnitt, 2008). In other words, fundamental to the potential link between management practices and order maintenance could be the manner in which inmates are supervised as well as how instances of misconduct are handled (Bottoms, 1999; DiIulio, 1987).

Bottoms's (1999) model could be a promising approach to studying prison disorder. Unlike the other perspectives discussed above (e.g., importation, deprivation), Bottoms's (1999) model recognizes the relevance of inmate, environmental, and management characteristics. If factors from all three of these domains are relevant to an explanation of disorder, then the existing theories of inmate behavior discussed above are either inadequate or require refinement. Yet before reaching such conclusions, Bottoms's (1999) observations require empirical testing and potential refinement as well, a point he acknowledges.

Chapter 3

MODELING PRISON DISORDER

This chapter contains a discussion of the empirical research on prison disorder. Several scholars have provided narrative and meta-analytic reviews of the literature linking inmate, environmental, and managerial characteristics to one or more indicators of prison disorder. I begin with a brief summary of particular observations contained in those reviews because they are relevant to subsequent discussions included here.

Contributions from Prior Reviews of the Prison Disorder Literature

Goodstein and Wright (1989) conducted a narrative review of the broader literature on inmate adjustment. Their review is still relevant to a discussion of prison disorder because several measures of adjustment (e.g., self harm, misconduct) are also considered indicators of disorder. Similar to the discussion in chapter 2, Goodstein and Wright (1989) identified the deprivation and importation perspectives as the prevailing theories of inmate behavior. Within the deprivation perspective, researchers have generally examined variables such as time served, facility type (e.g., custody level), and institutional dependency. Under the rubric of the importation model, researchers have often examined the effects of race, gender, and criminal orientation. Goodstein and Wright (1989) observed that a considerable number of researchers had suggested that the importation and deprivation perspectives were inadequate as stand-alone explanations of inmate behavior. Wright and Goodstein (1989) also (same edited volume) noted that an important direction for research may be to examine whether individual characteristics interact with differences in features of prison environments.

Wooldredge (1991) conducted a narrative review of the inmate deviance literature and concluded that researchers have generally focused on pre-institutional characteristics of inmates (importation) and institutional characteristics (deprivation), the latter of which he divided into individual- (e.g., sentence length) and aggregate-level measures (e.g., crowding). Regarding pre-institutional characteristics, Wooldredge (1991) found that variables measuring age, type of offense, emotional or mental stability, prior residence, and prior incarceration have been the most consistent predictors of inmate misconduct. The effects of institutional variables measured at the individual-level (e.g., sentence length) have generally been mixed, prohibiting any meaningful conclusions regarding their specific relevance.

Wooldredge (1991) made similar observations concerning institutional variables measured at the facility-level. The only variables that have exhibited some degree of consistency in related studies were measures of age composition of the population and institutional crowding. Wooldredge (1991) also noted that variables seem to have been chosen by researchers as a result of available data and not existing theories of inmate behavior. Furthermore, he noted that studies have failed to include variables from both the inmate- and facility-level of analysis, possibly contributing to model misspecification.

Adams (1992) also conducted a review of the inmate adjustment literature. With regard to theoretical perspectives of inmate adjustment, his observations are similar to those derived from the earlier reviews (e.g., importation, deprivation), although he also emphasized psychological perspectives on person-environment interactions. Adams (1992) found that individual-level variables measuring age, gender, marital status, drug/alcohol use, mental illness, time served, and a history of violence have all been consistently linked to suicide or self harm. An inmate's age, race, and prior violent behavior have generally been associated with misbehavior. Adams (1992)

observed that too few studies have been carried out to draw any conclusions regarding environmental variables. Variables measuring institutional crowding have received slightly more empirical attention (compared to other environmental variables); however, studies have revealed mixed effects. Regardless of the limited studies and inconsistent effects of environmental variables, Adams (1992) noted that there does appear to be evidence that prison environments vary and inmates respond to these environments in different ways. Adams (1992) recommended further examination of person-environment interactions and emphasized the potential importance of examining measures of facility management styles.

Gendreau and colleagues (1997) conducted a meta-analytic review of the studies predicting inmate misconduct, both published and unpublished between 1940 and 1995. At the individual-level, they revealed that age, antisocial attitudes and behaviors (e.g., substance abuse, interpersonal conflict), cognitive factors, criminal history, early family factors, personal distress, race, and measures of social achievement (e.g., education, marital status) were related to misconduct. Situational variables measuring crowding, institutional factors, and sentence factors were also predictive of misconduct. In discussing their findings, Gendreau et al. (1997) recommended examining more situational factors and investigating potential interactions between inmate characteristics and situational factors.

Bottoms (1999) carried out a review of the studies on interpersonal violence in prisons. At the inmate-level, he revealed relatively consistent effects for measure of age, criminal history, and inmates' social history (e.g., pre-incarceration employment). Males were more likely than females to commit serious misconduct, but the evidence was equivocal for less serious forms of misconduct. Bottoms (1999) observed mixed findings for race and sentence length. With regard to sentence variables, however, longitudinal studies have revealed that individuals who are in the

early part of their sentence are more prone to deviance compared to those who have served more time and thus had time to adapt to the prison environment. Bottoms (1999) emphasized the relevance of environmental variables, but indicated only two environmental variables have received adequate empirical attention. Crowding had been examined in many studies, but findings have been mixed. A facility's security level has generally been positively related to violence, although Bottoms (1999) cautioned that the majority of these aggregate-level studies have not included controls for the composition of inmate populations. Bottoms (1999) emphasized the need to examine how the relevant individual characteristics interact with differences in facility environments.

In a more recent review, Byrne and Hummer (2008) examined studies of prison violence or disorder published between 1984 and 2006. Although the point of the review was to document strategies that prevent violence, their summary of research is still relevant to the focus here because, unlike other reviews discussed in this chapter, Byrne and Hummer (2008) focused primarily on aggregate-level factors. They revealed mixed effects for measures of managerial practices, classification practices, facility crowding, inmate-staff ratios, and level of gang membership. Negative effects were generally observed for staff diversity and involvement in institutional programming. However, Byrne and Hummer (2008) were quick to point out that very few aggregate-level studies have been conducted and many of the existing studies were of such poor quality (according to the scoring systems developed by Campbell Collaborative and University of Maryland) that they cautioned against placing too much emphasis on their findings. Byrne and Hummer (2008) argued for more rigorous examination of factors that could potentially reduce disorder and examination of variables tapping institutional culture.

Taken together, these reviews underscore several themes. First, individual-level measures of age and criminal history (i.e., committing offense, prior record) are consistently related to misconduct and thus should be included in related models. Next, prison environments vary and individuals respond to the variations between environments in different ways. Researchers should therefore examine both inmate and environmental characteristics in the same model in order to control for differences across facilities when examining inmate-level variables and to permit examination of whether individual characteristics interact with characteristics of facility environments. Third, more aggregate-level studies are needed to clarify the relationship between crowding and disorder and to examine whether other potentially relevant factors (e.g., management characteristics) influence levels of disorder. Finally, aggregate-level studies should include controls for compositional differences in inmate populations between facilities.

Empirical Studies of Prison Disorder 1990-2007

In order to update the findings from the reviews discussed above, I conducted a systematic review of studies of indicators of prison disorder (e.g., self harm, misconduct, victimization) published between 1990 and 2007. The journals that were reviewed for relevant studies included *Criminology*, *Journal of Quantitative Criminology*, *Journal of Research on Crime and Delinquency*, *Journal of Criminal Law and Criminology*, *Law and Society Review*, *Justice Quarterly*, *Crime and Delinquency*, *Journal of Criminal Justice*, *Criminal Justice and Behavior*, *American Journal of Sociology*, *American Sociological Review*, *Social Problems*, *Social Forces*, *The British Journal of Criminology*, *The Prison Journal*, *Journal of Offender Rehabilitation*, *Punishment and Society*, and *International Journal of Offender Therapy and Comparative Criminology*.

The focus on prison disorder excluded studies of jails or institutions for juveniles. I also restricted the review to only those studies which contained multivariate analyses of indicators of disorder. Adopting this criterion necessarily excluded evaluation studies of institutional programs that used indicators of order, such as inmate misconduct as an outcome. For the same reason, predictive validity tests of classification instruments were also excluded unless the relative effects of the different domains of the tool derived from a multivariate model were reported (e.g., Harer and Langan, 2001; Proctor, 1994). The decision to exclude these studies was also based in part on the different purposes under which those studies were carried out. Gendreau et al. (1997) made similar distinctions in their review. I also excluded studies of inmate adjustment that used adjustment scales as an outcome. Adjustment is not the same as disorder, although the two concepts share some common indicators (e.g., self harm, misconduct). Adjustment scales such as Wright's Prison Adjustment Questionnaire (see, e.g., Clear and Sumter, 2002; Wright, 1991), for example, inquire about how inmates perceive their situation in prison relative to their pre-incarceration situation. These scales provide valuable insight about inmates' adjustment to prison. The purpose of such instruments, however, is to measure perceived situational change and thus necessarily ignores continuity in behavior (e.g., criminal history) that has been linked to indicators of order such as misconduct. Models of indicators of disorder (e.g., misconduct, parasuicide) derived from studies of inmate adjustment were included in the review even though those models were predicting an indicator of "adjustment" as opposed to disorder.

The review resulted in 53 studies of indicators of prison disorder. Examination of the references from the 53 studies revealed that two studies, Reisig (2002) and Kruttschnitt and Gartner (2005), were routinely cited by subsequently published studies. As such, those two

studies were included as well. The final models from the 55 studies are contained in Appendix 2. The 55 studies included 152 different final models of indicators of disorder. It is important to note, however, that many of these studies examined other variables but excluded them from their final models based on the results of zero order correlations or stepwise analyses. The results of those preliminary analyses are not reported here. In order to make the information in the table easier to understand, the operationalized measures are reported for some concepts. In some cases, information was also paraphrased in order to facilitate interpretation.

Units of Analysis

The review of studies published between 1990 and 2007 revealed that the majority of studies have been carried out at the individual-level of analysis. Perhaps following recommendations from prior reviews, there did appear to be an increased effort (compared to what was observed in prior reviews) to examine data from multiple facilities and include aggregate-level predictors measuring environmental characteristics in related models. Consistent with Byrne and Hummer's (2008) observations, there have been very few aggregate-level only studies. Researchers have, however, begun to reliably estimate inmate- and aggregate-level predictors in the same model through the use of hierarchical modeling strategies. Assuming a multi-facility (or multi-state) study, use of hierarchical modeling is important because the technique overcomes many of the potential problems associated with pooled regression models. As described by Wooldredge et al. (2001), there are several potential problems with such models:

First, collinearity between individual- and aggregate-level predictors might exist because individuals tend not to be distributed randomly across different physical environments. Second, differences in selection probabilities for individuals across aggregates might result in correlated error within aggregates at the micro level... Third, unequal error variances at the macro level (heteroskedasticity) might exist because different numbers of individuals exist within aggregates of the sample. Finally, tests of the aggregate-level null hypotheses might

be biased in a pooled regression model because these tests are based on the number of individuals (rather than aggregates) in such models (2001; p. 214).

Hierarchical modeling also allows researchers to control for compositional differences in inmate populations permitting more rigorous tests of aggregate-level predictors, which is consistent with Bottoms's (1999) suggestion. Researchers can also estimate potential cross-level interaction effects (i.e., whether lower-level relationships are conditioned by higher-level predictor variables). Due to data constraints (i.e., most studies have examined secondary data), very few of the studies reviewed here included examinations of potential cross-level interaction effects. Most studies have only modeled main effects. In light of the recommendations from prior reviews (e.g., Adams, 1992; Wright and Goodstein, 1989), this line of research may be an avenue worth pursuing in future studies.

Dependent Variables

This review of studies published between 1990 and 2007 revealed that researchers have modeled indicators of self harm, victimization, collective and individual violence, disruptive events, and inmate misconduct. For the most part, however, studies have focused on the prevalence and incidence of types of inmate misconduct. In fact, too few studies of the other outcomes have been conducted to draw any meaningful conclusions. Still, the findings from those studies may still be relevant to a study of misconduct because all of these indicators reflect prison disorder. Indeed, scholars who have created factors of multiple indicators of disorder have found that many of these items are highly intercorrelated and cluster together on a single factor (e.g., Reisig, 1998).

Specific to misconduct, scholars have examined both self-reported and official misconduct, with the latter being used more often in the studies reviewed here (see Appendix 2). Officially

detected misconduct is analogous to arrest data in community studies. Arrest data have been criticized in that they underestimate the volume of crime (Hindelang, Hirschi and Weis, 1981; Kirk, 2006; Maxfield, Weiler, and Widom, 2000; Thornberry and Krohn, 2002). Arrest data are influenced by decisions made by criminal justice officials (e.g., arrest, recording) and the inherent discretion in such decisions can threaten the validity of arrest data as an indicator of crime (Maxfield et al., 2000; Maxfield and Babbie, 2006). On the other hand, arrest data have been determined to be less biased for more serious offenses (Hindelang, Hirschi, and Weis, 1979; Hindelang et al., 1981; Thornberry and Krohn, 2002). Arrest data can also be advantageous for longitudinal studies because arrests are recorded at specific points in time (Kirk, 2006; Thornberry and Krohn, 2002).

Use of self-report data seemingly overcomes the potential problems related to underestimation and recording requirements that are associated with official data. However, self-report data are not without problems. Potential limitations of self-report data include systematic errors resulting from poor recall and/or underreporting by certain groups of respondents (Hindelang et al., 1981; Thornberry and Krohn, 2002). However, both self-report data and arrest data have generally been acknowledged to be valid indicators of criminal behavior (Hindelang et al., 1981; Kirk, 2006; Thornberry and Krohn, 2002).

The few studies that have compared self-reported deviance to officially detected misconduct using offender samples have revealed very similar problems to those observed by researchers who have conducted related studies with non-offender samples. Regarding self-report data, offenders have been willing to report past criminal behavior, although some underreporting by groups of respondents and offense types has occurred (Farrall, 2005; Kroner, Mills, and Morgan, 2007; Motiuk, Motiuk, and Bonta, 1992). Official misconduct, on the other hand, has been found

to underestimate the total volume of deviance within institutions (Hewitt, Poole, and Regoli, 1984; Poole and Regoli, 1980a; Van Voorhis, 1994). Official data have also been criticized due to the potential of finding spurious effects because the probability of an incident going unreported or undetected may be correlated with various inmate or facility characteristics (Light, 1990). For example, Steiner and Wooldredge (2008b) argued that institutional crowding may affect the level of supervision, which may in turn affect the level of official misconduct. Studies have also revealed some evidence of differential enforcement at the inmate-level (see, e.g., Poole and Regoli, 1980a). These limitations notwithstanding, both official misconduct and self-report measures have been determined to be valid indicators of inmate adjustment (Kroner et al., 2007; Simon, 1993; Van Voorhis, 1994).

Examination of the models contained in studies included in this review also revealed that researchers of misconduct have examined pooled measures of all rule violations, while others have specified their analyses by categories of misconduct such as violence, property offenses, assaults on other inmates, drug or alcohol offenses, and so forth. Consideration of specific types of rule infractions implies that some predictors may only be relevant for certain types of misconduct, whereas focusing on a pooled measure of misconduct assumes a general explanation to inmate misbehavior. From a theoretical perspective, the argument is similar in several respects to the debate concerning specialization and criminal careers in the broader criminological literature (e.g., Blumstein, Cohen, and Farrington, 1988; Gottfredson and Hirschi, 1986; Sullivan, McGloin, Pratt, and Piquero, 2006). Examining this issue, Camp et al. (2003) recently observed that the statistical significance of the same predictors varied across models of different types of rule violations including a pooled measure of all misconduct. Taking this one step further, Steiner and Wooldredge (2006) uncovered very similar effects for many types of rules

violations when they examined the magnitude of differences between coefficients; however, they did find significant differences in some effects derived from models of assaults, drug/alcohol violations, and other nonviolent violations. Thus, it seems researchers should examine these three types of misconduct separately, at least for studies of official misconduct.

Inmate Characteristics

Recall from chapter 2 that the characteristics of inmates have generally been linked to deviance using the importation perspective on inmate behavior. Although not consistent with the subcultural aspect of importation theory, researchers have suggested that the pre-incarceration characteristics of inmates that increase the probability of engaging in deviant behavior in general are also relevant for explaining deviance in prisons. For example, inmates with a history of violent behaviors might also behave violently in prison.

Consistent with the observations of the prior reviews, this review revealed that variables measuring age and criminal history were the most frequently related to misconduct. With regard to criminal history, however, this review revealed consistent effects for an inmate's prior criminal record, but inconsistent effects for the type of offense inmates were incarcerated for.

The effects for inmate's race/ethnicity and gender have been mixed, although it should be noted that very few studies have included female inmates. Female-specific studies have revealed that when compared to findings from studies of male inmates, similar factors influence female inmates' likelihood of engaging in deviance (see, e.g., Kruttschnitt and Gartner, 2005). Taken together, the findings from the studies included in this review suggest that the effects of race/ethnicity are mixed. Many of the offense-specific studies, however, have uncovered positive relationships between an inmate's race or ethnicity and violent misconduct (e.g., assaults on inmates), and either a null or negative relationship with other outcomes such as drug offenses

(e.g., Gaes, Wallace, Gilman, Klein-Saffran, and Suppa, 2002; Gillespie, 2005; Harer and Steffensmeier, 1996; Huebner, 2003; Komarovskaya, Loper, and Warren, 2007; Sorensen, Wrinkle, and Gutierrez, 1998; Reidy, Cunningham, and Sorensen, 2001; Steiner and Wooldredge, 2008a; Wooldredge, 1994). Thus, it could be that inmates' race or ethnicity is a predictor that may only be relevant for certain types of deviance.

Effects for measures tapping into inmates' connection to conformist behaviors or their social achievement (e.g., marriage, employment, education) have varied across studies. Yet scholars have continued to posit that they are relevant to an understanding of inmate deviance. Similarly, the presence of these factors have been thought to influence an inmate's risk for criminality in general (Harer and Langan, 2001; Wooldredge et al., 2001). Thus, further examination of the specific relevance of variables measuring these concepts is required.

In a few of the more recent studies, scholars have begun to examine inmates' pre-incarceration drug use and their involvement in gangs or security threat groups (e.g., Gaes et al., 2002; Huebner, 2003; Jiang and Winfree, 2006). Measures of such behaviors could be relevant because they demonstrate a propensity for antisocial behavior in general. Although there are too few studies to draw firm conclusions at this point, the limited evidence does suggest that measures of antisocial behavior such as pre-arrest drug use or gang involvement may be important to include in models of inmate deviance.

Environmental Characteristics

Researchers have considered the effects of environmental variables, often under the rubric of deprivation theory. Environmental characteristics can be measured at the individual-level depicting inmate routines or lifestyles. Environmental characteristics can also be measured at the aggregate-level representing differences between the facilities in which inmates are confined.

Characteristics of inmates' routines or the facilities in which they are situated that intensify the pains of imprisonment are predicted to contribute to greater stress and maladaptive outcomes such as self harm and deviance.

At the inmate-level, the most frequently examined variables from this domain are inmates' sentence length or time served. The findings from studies included in this review revealed mixed effects for sentence length. Time served generally exhibited a relationship with all forms of disorder. Before drawing any conclusions, however, it is important to point out that a number of the studies involved examination of outcomes without a fixed period of time attached to them. For example, the Survey of Inmates in State and Federal Correctional Facilities conducted by the United States Census Bureau for the Bureau of Justice Statistics every 5 to 6 years has provided the data for several of the studies included in this review (e.g., Huebner, 2003; Jiang, 2005; McCorkle, 1995). In that data set, the outcome measures and some of the predictors were derived from questions that are preceded by the phrase, "Since your admission, have you...", which would increase the likelihood of misconduct among inmates who have been incarcerated for longer periods of time. In many cases, researchers have recognized this limitation and included time served simply as a control variable. Including time served in a model with sentence length may weaken the effect of sentence length because the two variables would necessarily be related. Thus, more studies that involve examination of outcome variables with fixed periods of time are needed to clarify the potential links between sentence length and time served with prison disorder.

None of the other environmental characteristics measured at the inmate-level have been examined by researchers with any frequency. Some scholars have examined indicators of inmates' involvement in prison programming or work assignments (e.g., Wooldredge, 1994).

Other researchers have included measures of contact with family through visitation or phone (e.g., Jiang and Winfree, 2006). The theoretical linkages between these variables and inmate deviance are clear and so further examination of their importance is required.

At the aggregate-level, two environmental characteristics have been consistently included in studies of the subject. Crowding has been included in many studies, but effects have been mixed. Security level has also been examined in many studies and findings have revealed that higher security facilities or facilities which contain a larger proportion of inmates classified at higher custody levels are associated with higher levels of official misconduct.

Other variables that have been examined include the level of involvement in institutional programming and inmate-to-staff ratios. Scholars have also included the number of years a facility has been in operation, perhaps proxying facility design. Finally, compositional variables such as the proportion of racial and ethnic groups, the level of involvement in prohibited groups (e.g., gangs), the average age of the population, and proportion inmates classified at particular levels have all be included in related studies. These variables are all worthy of future consideration, but none of them have been examined with enough frequency to permit any inferences regarding their effects.

Management Characteristics

Management characteristics were the most infrequently examined variables in the studies reviewed here, although most researchers have acknowledged their potential relevance. Many of the variables discussed above under “environmental characteristics” have also been included in models as management characteristics (e.g., ratio of inmates to guards, security level, involvement in programming). The generality of such measures suggests that they could potentially tap into concepts derived from both environmental (e.g., deprivation theory) and

management perspectives (e.g., administrative control). The infrequency with which variables depicting management practices have been included prohibits meaningful conclusions regarding the importance of any specific variables other than security level, as discussed above. Yet findings from the few existing studies have revealed that direct measures of coercive control such as administrative sanctions have been effective in reducing the likelihood of some types of inmate deviance (see, e.g., Steiner, 2009; Useem and Reisig, 1999), although more control-oriented styles of facility management have been linked to higher levels of disorder (McCorkle et al., 1995; Reisig, 1998). Remunerative controls, such as higher numbers of inmates enrolled in structured activities, have been associated with lower levels of misconduct (Huebner, 2003; McCorkle et al., 1995; Steiner, 2009), while other researchers have found that measures tapping the racial and gender composition of the staff can also affect a facility's misconduct level (Camp et al., 2003; McCorkle et al., 1995).

As discussed earlier, however, the sole focus of the quantitative studies on modalities of facility management has necessarily restricted analyses to the facility-level, although some researchers have controlled for compositional differences in inmate populations at the individual-level (e.g., Camp et al., 2003; Huebner, 2003). Difficulties faced by researchers when conducting related studies have forced them to either examine indirect measures of prison management, such as the racial and gender composition of the staff (e.g., McCorkle et al., 1995; Camp et al., 2003), or to examine survey data on managerial practices obtained from administrators (e.g., Reisig, 1998; Useem and Reisig, 1999). To date, no quantitative studies have evaluated the relevance of Bottoms's (1999) observations regarding the micro-level concept of the perceived legitimacy of the staff. Those few researchers who have examined more general perceptions of correctional staff or the facility in which they were confined have revealed differing effects. Specifically,

Wooldredge (1994) found that perceptions of the facility had no effect on misconduct. More recently, Vuolo and Kruttschnitt (2008) found that perceptions of correctional staff were related to female inmates' likelihood of engaging in misconduct.

All told, the general agreement regarding the importance of management characteristics suggests more quantitative research regarding the importance of specific characteristics of facility management is sorely needed. Researchers should examine more direct measures of the characteristics of facility management at the macro-level. Micro-level variables depicting aspects of facility management, perhaps derived from inmates' perceptions, could also be an important avenue of inquiry for future studies.

Chapter 4

RESEARCH QUESTIONS AND METHOD

The study described below was designed to examine the prevalence and incidence of inmate misconduct. In light of the study objectives, the following specific research questions were pursued:

1. Within facilities, what were the relative effects of inmates' characteristics on the *prevalence* of violent offenses, drug/alcohol offenses, and other non-violent rule infractions?
2. Within facilities, what were the relative effects of inmates' characteristics on the *incidence* of violent offenses, drug/alcohol offenses, and other non-violent rule infractions?
3. Do the effects identified for #1 and #2 vary significantly *across* facilities?
4. What were the relative effects of facility characteristics on the *proportion* (prevalence) of inmates who engaged in violent offenses, drug/alcohol offenses, and other non-violent rule infractions?
5. What were the relative effects of facility characteristics on the *average number of times* (incidence) inmates engaged in violent offenses, drug/alcohol offenses, and other non-violent rule infractions?
6. If any of the inmate-level effects varied across facilities (#3), were those differences shaped by facility characteristics?

Study Site

The study was carried out in the state of Ohio. Fieldwork for the study occurred between August of 2007 and March of 2008. Ohio has been a determinant sentencing state since 1996, and so most of the inmates (about 87 percent) who were in the state's custody during the study

period were serving judge imposed mandatory sentences that would also be their actual time served. At the time of the study, the Ohio Department of Rehabilitation and Correction (ODRC) operated 30 correctional institutions for adults, along with 13 correctional camps. Most of the main facilities were run primarily as general confinement facilities ($N = 23$). Three of the facilities operated as pre-release centers, two facilities functioned principally as reception centers, and the ODRC also operated one medical and one psychiatric treatment facility. During the study period, the state also contracted with two facilities located in Ohio that were operated by Management and Training Corporation. These privately run facilities only held ODRC inmates. All 32 of the facilities were accredited by the American Correctional Association. During the time period when the fieldwork for the study was being carried out, the ODRC and private facilities collectively experienced one escape, six suicides, and no homicides. Inmates from each of 32 main facilities were included in the study.

Samples and Data

The data for this study were collected as part of a larger project examining the disciplinary process within and across facilities for adults in the state of Ohio. As a part of the study, inmates were surveyed regarding their backgrounds, as well as their routines, perceptions of the staff, and the disciplinary process in the facility in which they were confined. Official data on criminal history, gang membership, and (social) demographics were also collected for each inmate, as well as official reports of incidents of their misconduct while at the facility.

The target population for this portion of the study included all inmates housed in the 32 main confinement facilities for adults in Ohio. With two exceptions, inmates housed in the correctional camps, mental health units, or the youthful offender unit were excluded due to practical constraints and unmeasured structural and managerial differences that exist between

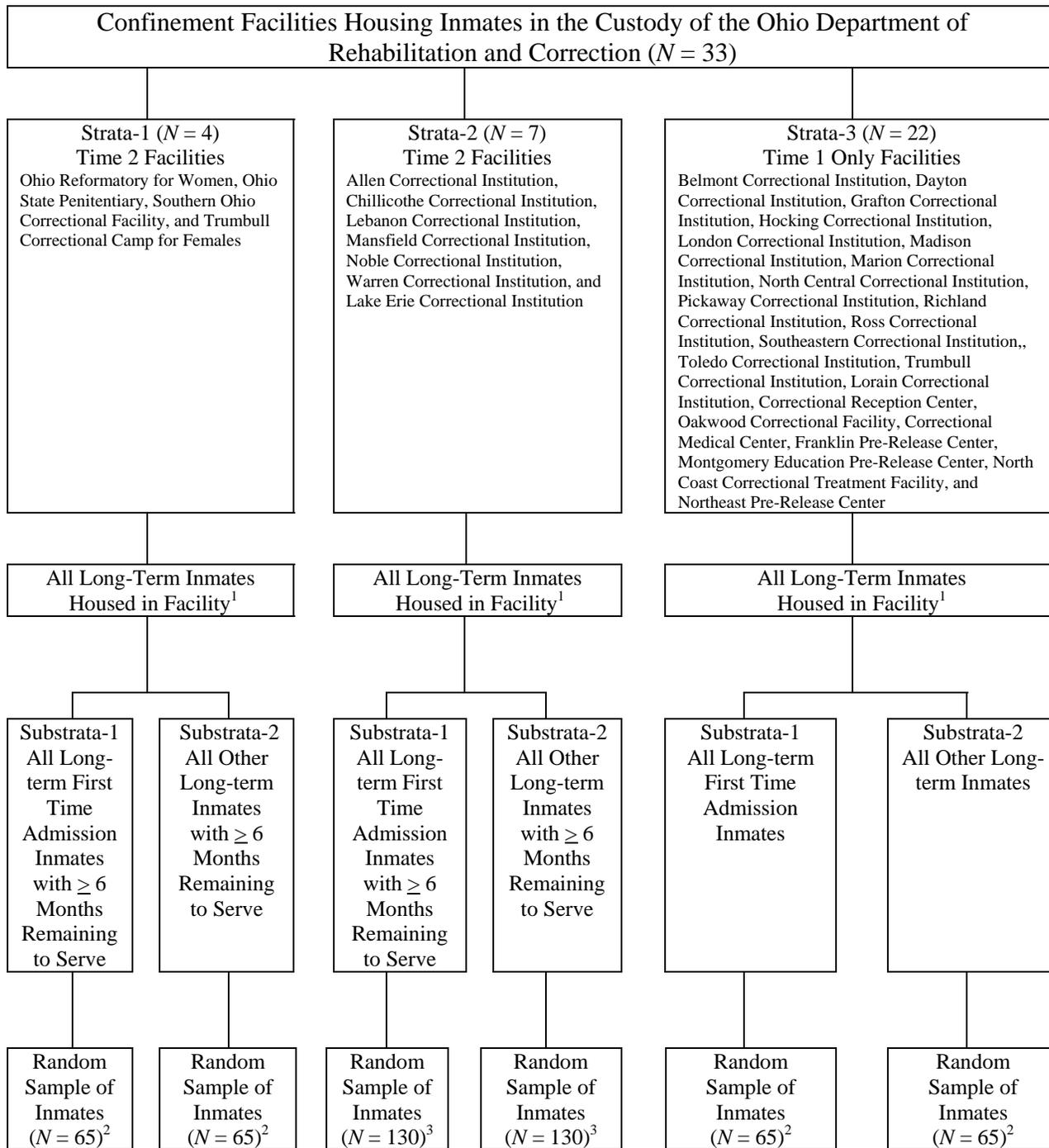
those facilities and the primary facility within which they are contained.¹ Inmates housed in the correctional camp at the Ohio State Penitentiary (Ohio's supermax facility) were included for theoretical reasons dictated by the larger project. In order to ensure adequate representation of facilities for females, inmates housed in the correctional camp for females at the Trumbull Correctional Institution were also included. Ohio has three other facilities for women, but two of those facilities are pre-release centers, which typically do not house inmates for long periods of time (> 1 year). Therefore, the camp for females at Trumbull Correctional Institution was the most similar institution to the Ohio Reformatory for Women, which was the primary facility for women in the state during the study period. For reasons discussed above, the camp for females was treated as a separate facility, which increased the total number of facilities to 33.

Figure 1 depicts the multi-stage sampling design of the larger project that is described in greater detail below. The 33 facilities were stratified into three groups based on theoretical considerations (e.g., some facilities do not house inmates for long periods of time) and practical constraints dictated by ODRC and the larger project. The larger project that this study was a component of included a longitudinal element, and so length of stay needed to be considered when selecting some of the inmates.

Approximately 130 "long-term" inmates were selected from each of the facilities in Strata-1 and Strata-3 and 260 long-term inmates were selected from each of the facilities in Strata-2. Long-term inmates were defined as those inmates who had served at least six months in ODRC custody. The decision to select only 130 inmates from some of the Strata-1 facilities was dictated

¹ Specifically, the inmates housed in the correctional camps at Belmont Correctional Institution, Grafton Correctional Institution, Lebanon Correctional Institution, Mansfield Correctional Institution, Marion Correctional Institution, Ohio Reformatory for Women, Pickaway Correctional Institution, Ross Correctional Institution, Southeastern Correctional Institution, and Toledo Correctional Institution, along with the mental health units at Pickaway Correctional Institution and Corrections Reception Center were excluded from the sampling frames. The inmates housed in the youthful offender unit (< 18) at Madison Correctional Institution were excluded by the University of Cincinnati Institutional Review Board.

Figure 1: Sampling Design for Collection of Inmate Data



Notes:

- ¹ Long-term inmates are those inmates who have served at least 6 months in their current facility
- ² Targeted sample size is 100 inmates, 30 percent over sample included. A 1:1 ratio of first time admits to general population inmates was not possible in some facilities.
- ³ Targeted sample size is 200 inmates, 30 percent over sample included. A 1:1 ratio of first time admits to general population inmates was not possible in some facilities.

by ODRC (i.e., selection of 260 inmates would have placed an undue burden on those facilities). The goal was to obtain complete information on at least 100 inmates per facility in Strata-1 and Strata-3, and at least 200 inmates per facility in Strata-2. The 30 percent over-sample was included to compensate for refusals and incomplete surveys, based on the recommendations of research staff at the ODRC. Due to resource constraints, non-English speaking inmates were excluded from the inmate sampling frames.²

In selecting the inmates, facilities were first stratified on whether they were time 2 facilities (Strata-1, $N = 4$; Strata-2, $N = 7$) or time 1 only facilities (Strata-3, $N = 22$). Recall that the larger project contained a longitudinal component with two study periods. Some of the Strata-3 facilities did not house 130 long-term inmates at the time of study, based on the special offender populations housed there, and so all long-term inmates in those facilities were selected. Otherwise, all long-term inmates were stratified into two groups; long-term first-time ODRC prison admits and all other long-term inmates. From each of these two strata, 65 inmates were randomly selected, although the goal of a 1:1 ratio was not possible in some facilities. For the Strata-1 and Strata-2 facilities, all the long-term inmates housed in each facility were stratified into two groups based on whether the inmate(s) had at least six months remaining on their sentence. Those inmates who did not have at least six months remaining to serve were removed from the Strata-1 and Strata-2 inmate-level sampling frames. Long-term inmates with at least six months remaining on their sentence were then stratified into two sub-groups; 1) long-term first-time ODRC prison admits; 2) all other long-term inmates. From each of these two sub-strata, 65

² Non-English speaking inmates were identified by their citizenship status. All inmates designated as illegal aliens were excluded from the sampling frames. Exclusion of the inmates designated as illegal aliens probably did not eliminate all the non-English speaking inmates from the sampling frames. The remaining non-English speaking inmates were treated as refusals because they were not identifiable to the researchers.

(Strata-1) or 130 (Strata-2) inmates were randomly selected (except when a 1:1 ratio of first time admits to other inmates was not possible).

The larger project included an examination of inmates' perceptions of the disciplinary process, so first-time admits to prison were over-sampled in order to capture more of the first-time rule violators who would provide perceptions that could only be attributed to those specific incidents. These techniques generated a sample of 5,094 inmates across the 33 facilities. Some inmates were not available on the day of the survey, however, further reducing the sample size to 4,929 inmates across the 33 facilities.³

The methods of administration varied somewhat across facilities. For most facilities, inmates were passed to designated locations where they were surveyed in groups ranging in size from 20 to 130. Other facilities required the surveys to be administered to inmates in their cells, pods, or in groups of five to 10. Illiterate and vision impaired inmates were included if those inmates identified themselves to one of the researchers. Some facilities provided non-custodial staff or inmate workers to read the surveys to illiterate or vision impaired inmates. In most instances, however, one of the researchers read the survey to these inmates. In cases where inmates did not receive or honor their pass, efforts were made to locate those inmates on the compounds. Inmates who were in segregation or protective custody were generally surveyed in their cells. The survey was voluntary permitting inmates the right to refuse participation. Inmates who were not located, but were on the compound were treated as refusals. These procedures resulted in 3,976 surveys, an overall response rate of 81 percent. Facility specific response rates are contained in Appendix

³ Some inmates were unavailable because they had been released or transferred ($N = 74$), posed a safety risk ($N = 27$), were on a visit ($N = 15$), or were not on the compounds (e.g., out to court) ($N = 49$). As the study went on, the number of unavailable inmates was decreased by obtaining additional information regarding the housing locations of the inmates the week prior to the study. This information permitted the exclusion of inmates who were not at the facility (e.g., absent with leave), were scheduled to be released, or were recently placed in segregation from the sampling frames.

3. Some ($N = 92$) of the surveys were later determined to be unusable reducing the sample size to 3,884 inmates (response rate = 79 percent) confined within the 33 institutions for adults in Ohio.

The survey instrument was piloted at the Montgomery Education and Pre-Release Center. Answers to the survey items were examined for response bias and disproportionate missing information on particular items, and the items were revised accordingly. However, most of the survey items generated usable information, and so data collected from the pilot facility were still included in the analyses reported here.

Table 1 contains descriptive statistics for demographic, criminal history, and sentence related variables for both the final sample and the target population. Despite the intricacies of the sampling design, the sample is generally comparable to the target population. Discrepancies which do exist were expected based on oversampling females, first time ODRC admits, inmates who had served at least six months, and so forth. All the analyses that are subsequently reported include normalized weights reflecting the inverse of an inmate's odds of selection into the sample (e.g., their status as "long-term" inmates, whether they were first-time admits, facility population size).⁴

Facility-level data were derived from aggregating responses to the survey, from ODRC records, and from interviews conducted with the wardens of each facility. Since the camp for female inmates at Trumbull Correctional Institution is under the direction of the warden of the larger facility, the unit manager for the camp was interviewed. The unit manager is responsible for most of the administrative matters at the camp, including those related to inmate discipline.

⁴ Specifically, the weights were created by first determining the probability of selection for each inmate based on the stratified sampling design, and then by taking the inverse of each inmate's probability of selection. For example, an inmate who was a first time ODRC admit housed in the Lebanon Correctional Institution (a Strata-2 facility) was sampled at a rate of .02, and so the weight would be $1/.02$. The weights were then normalized back to the size of the sample by multiplying the weights by the (number of cases/sum of the weights). For the inmate type described above, these procedures resulted in a normalized weight of .27.

Table 1: Means (with standard deviations) for characteristics of the target population and sample

Measures	Target Population		Sample (unweighted)	
	\bar{x}	s	\bar{x}	s
Age	35.65	(11.23)	37.07	(11.65)
Female	.08	(.27)	.11	(.32)
African American	.48	(.50)	.48	(.50)
Other minority	.03	(.17)	.02	(.14)
Caucasian	.50	(.50)	.50	(.50)
Incarcerated for violent offense	.40	(.49)	.45	(.50)
Incarcerated for sex offense	.15	(.35)	.15	(.35)
Incarcerated for drug offense	.16	(.37)	.15	(.35)
Incarcerated for property offense	.18	(.39)	.15	(.36)
Incarcerated for other type of offense	.11	(.31)	.10	(.31)
Sentence length (in months)	96.20	(119.81)	115.65	(130.24)
Time served (in months)	47.15	(67.54)	58.45	(69.54)
Number of prior imprisonments	.94	(1.43)	.93	(1.35)
<i>N</i>	47,207		3,884	

Most of the information from the interviews was used to address the questions posed by the larger project; however, some of the responses were useful for providing information on managerial practices, staff morale, problems within each facility. Qualitative information derived from the interviews was also used to aid the interpretation of the quantitative findings and guide decisions regarding the selection of some of the predictors that were ultimately included in the final models.

Measures

The outcome measures and predictors that were included in the analyses reported here are described in Table 2. The scales used to create each of the measures are detailed in Table 3. The inmate-level measures in Table 2 were ultimately selected by considering their theoretical relevance as demonstrated in the empirical literature, thorough checks for (multi)collinearity, the stability of coefficient estimates (influenced by the number of predictors relative to sample size), and the strength of the zero-order relationships. Related criteria were ultimately used to select the facility-level predictors included in the final models; however, an additional step was taken to determine the facility-level measures due to the limited degrees of freedom at level-2 ($N = 33$). Specifically, different combinations of predictors at level-2 were explored to determine the model that provided the best fit to the data. For these models, forced step-wise analyses were conducted because significant effects might not be revealed until modeled in multivariate form (Blalock, 1979). All of the other inmate- and facility-level measures that were considered for the analyses are contained in Appendix 4.

The outcome measures included the prevalence and incidence of official misconducts the inmates were found guilty of during the six months prior to the survey date. The “prevalence” of misconduct was defined as whether or not the inmate committed misconduct, whereas the

**Table 2. Descriptions of the Inmate and Facility Samples
(unweighted)**

Measures	\bar{x}	<i>s</i>	Range
<u>Outcomes¹</u>			
Prevalence of violent offense	.06	(.23)	0-1
Incidence of violent offenses	.07	(.30)	0-4
Prevalence of drug/alcohol offenses	.03	(.17)	0-1
Incidence of drug/alcohol offenses	.03	(.20)	0-3
Prevalence of other nonviolent rule infractions	.46	(.50)	0-1
Incidence of other nonviolent rule infractions	1.23	(2.35)	0-33
<u>Level-1 Predictors: Inmates¹</u>			
Age	37.07	(11.65)	18.15-81.01
Female	.11	(.32)	0-1
African American	.48	(.50)	0-1
Conventional behaviors	1.29	(.83)	0-3
Used drugs in month before arrest	.54	(.50)	0-1
Prior incarceration	.48	(.50)	0-1
Incarcerated for a violent offense	.45	(.50)	0-1
Incarcerated for a property offense	.15	(.36)	0-1
Time served (in months)	58.45	(69.54)	0.33-465.76
Number of hours at work assignment	14.45	(14.26)	0-40
Number of visits per month	1.03	(1.59)	0-16
Gang member	.15	(.36)	0-1
Legitimacy of correctional staff	.00	(1.00)	-1.84-2.38
<u>Level-2 Predictors: Facilities²</u>			
Proportion inmate maximum security	.04	(.17)	0-0.85
Racial heterogeneity of correctional staff	.33	(.15)	0.06-0.59
Legal cynicism	-.05	(.33)	-0.77-0.46

Notes: ¹Descriptive statistics based on $N_1 = 3,884$ inmates.

²Descriptive statistics based on $N_2 = 33$ facilities.

“incidence” was defined as the frequency of misconduct in the six month period. Both the prevalence and incidence measures were examined in order to provide a more comprehensive description of misconduct (i.e., some predictors may be more relevant for understanding whether an inmate ever engages in misconduct while others may be stronger predictors of the frequency of misconduct). Blumstein, Cohen and Nagin (1978) made a similar argument with regard to the analysis of recidivism.

Following Steiner and Wooldredge (2006), misconduct was distinguished by whether the offenses the inmates were found guilty of were *violent offenses, drug/alcohol offenses*, or other *nonviolent rule infractions*. Violent offenses were examined as opposed to only examining assaults because of the greater availability of detailed offense types in the misconduct data used for this study. Violent offenses (as opposed to assaults) have also been examined more often in related research (see Appendix 2). The specific inmate rule infractions (see Appendix 1) included in each of the three categories are detailed in Appendix 5. Even though researchers have determined that officially detected misconduct is a valid indicator of inmate behavior (e.g., Kroner et al., 2007; Simon, 1993; Van Voorhis, 1994), and official misconduct has been examined more frequently in studies of the subject (see Appendix 2), the potential limitations of officially detected misconduct discussed earlier should still be kept in mind when considering the study findings.

The inmate-level predictors that were ultimately included in the analyses were *age, female, African American, conventional behaviors, used drugs in month before arrest, prior incarceration, incarcerated for violent offense, incarcerated for property offense, time served, gang member, number of hours at work assignment, number of visits per month, and legitimacy of correctional staff*. Age, African American, prior incarceration, incarcerated for violent

Table 3. Measures and Related Scales Included in the Final Analyses

Measures
<u>Outcomes</u>
<i>Prevalence of violent offenses</i> Inmate found guilty of a violent misconduct in six months prior to the study date, 1 = yes, 0 = no
<i>Incidence of violent offenses</i> Number of violent misconducts inmate was found guilty of in the six months prior to the study date
<i>Prevalence of drug/alcohol offenses</i> Inmate found guilty of a drug related misconduct in six months prior to the study, 1 = yes, 0 = no
<i>Incidence of drug/alcohol offenses</i> Number of drug related misconducts inmate was found guilty of in the six months prior to the study
<i>Prevalence of other nonviolent rule infractions</i> Inmate found guilty of an other nonviolent misconduct in six months prior to the study, 1 = yes, 0 = no
<i>Incidence of other nonviolent rule infractions</i> Number of other nonviolent misconducts inmate was found guilty of in the six months prior to the study
<u>Level-1 Predictors: Inmates</u>
<i>Age</i> Number of years old inmate was on the study date
<i>Female</i> 1 = yes, 0 = no
<i>African American</i> 1 = yes, 0 = no
<i>Conventional behaviors</i> Sum of three dummy measures indicating whether inmate reported they were married, a high school graduate, and were employed or receiving SSI prior to their sentence
<i>Used drugs in month before arrest</i> 1 = yes, 0 = no
<i>Prior incarceration</i> 1 = yes, 0 = no
<i>Incarcerated for a violent offense</i> 1 = yes, 0 = no
<i>Incarcerated for a property offense</i> 1 = yes, 0 = no
<i>Time served</i> Number of months the inmate had served on the study date

Table 3. Measures and Related Scales Included in the Final Analyses (continued)

Measures
<u>Level-1 Predictors: Inmates</u>
<i>Number of hours at work assignment</i> Number of hours inmate reported they spend working a job in their facility per week
<i>Number of visits per month</i> Number of visits inmate reported they receive per month
<i>Gang member</i> 1 = yes, 0 = no
<i>Legitimacy of correctional staff</i> Scale comprised of the following items (factor loadings): Please indicate whether you strongly agree, agree, disagree, or strongly disagree with each of the following statements: Overall, the correctional officers here do a good job (.832) The correctional officers are generally fair to inmates (.837) Correctional officers treat me the same as any other inmate here (.726) Correctional officers treat some inmates better than others (reverse coded) (.316) Please indicate whether you are very satisfied, satisfied, unsatisfied, or very unsatisfied with each of the following: How correctional staff solve problems and help inmates (.815) Fairness of discipline when inmates are caught breaking the rules (.729) Fairness of the way correctional staff treat inmates (.867)
<u>Level-2 Predictors: Facilities</u>
<i>Proportion inmates maximum security</i> Number of inmates classified level 4 (maximum), level 5 (administrative maximum), or death row/facility population
<i>Racial heterogeneity of correctional staff</i> One minus the sum of the squared proportions of the overall facility population within each racial/ethnic group
<i>Legal cynicism</i> Facility-level mean of the reverse coded factor scores for legitimacy of correctional staff

offense, incarcerated for property offense, and time served were created using data obtained from ODRC records. African American did not include inmates who both were African American and Hispanic. Measures of drug use during the month before arrest, the number of hours at work assignment, and number of visits per month were based on responses to questions on the inmate survey.⁵ Conventional behaviors is similar to Wooldredge et al.'s (2001) measure of commitment to convention and is an additive scale of three dichotomous variables measuring whether the inmate was married at the time of the survey, had at least a high school diploma, and was employed or receiving SSI prior to their incarceration. These items were taken from responses to individual survey items. The measure used here differs from Wooldredge et al.'s (2001) by treating SSI the same as employment. The measure of gang membership was retrieved from ODRC records of disruptive, active, or passive participation in a security threat group. The criteria used for these designations are similar to those used by the Federal Bureau of Prisons (BOP) and related measures were examined by Gaes et al. (2002) in their study of prisoners housed there. Legitimacy was measured with a scale consisting of seven survey items ($\alpha = .86$, mean inter-item correlation = .47)). Principal components analysis revealed a one factor solution (Kaiser-Meyer-Olkin measure of sampling adequacy = .89, Eigenvalue = 3.97) and the resulting factor score was used for the measure that was included in the analyses reported here. The individual questions comprising the scale and their component loadings are contained in listed in Table 3. Although some studies of individuals in the community have treated items similar to several of those contained in the legitimacy scale as satisfaction with legal authority (e.g., Tyler, 1990), the principal components analysis of the responses to the survey of this inmate sample

⁵ In order to reduce the skew in the distribution and capture more meaningful variation, the number of hours at work assignment was capped at 40.

revealed that the two concepts were not empirically distinct. Thus, they were included in a single scale here.

The final set of facility-level measures included the *proportion inmates maximum security*, the *racial heterogeneity of correctional staff*, and *legal cynicism*. The proportion of maximum security inmates was chosen because Ohio does not designate facilities as institutions of a particular security-level. Most facilities house inmates classified at different custody levels (range = 1-5). For this reason, the proportion of inmates classified as maximum security may be a more accurate measure of the level of risk posed by the environments of Ohio facilities. Inmates who are classified as maximum security inmates are also only housed in facilities designed for more secure custody (i.e., more restricted and sterile environments). Compared to other measures of security level (see Appendix 4), the proportion inmates classified maximum security also had a stronger zero order correlation with the outcomes examined here. In creating the measure, all the inmates designated as level-4 (maximum), level-5 (administrative maximum), or death row were treated as maximum security inmates. The measure of the racial heterogeneity of the correctional staff was derived using Blau's (1977) formula $(1 - \sum p_i^2)$, where the sum of the squared proportions of the overall facility population within each racial/ethnic group (p) is subtracted from one. This measure appropriately considers the number and distribution of groups in the population. From the facility-level population statistics, five groups (Caucasian, African American, Hispanic, Asian, and American Indian) were used for the calculation of the heterogeneity measure.⁶ The measure of legal cynicism was created by first

⁶ Facility-level information on correctional staff was not provided by the two private facilities. In order to create the heterogeneity measure for those facilities, the racial distribution of respondents to an officer survey (part of the larger project) was used. Facility specific sample sizes for the officer survey were generated using 95 percent confidence intervals, and also included an oversample of 50 percent to compensate for refusals and turnover common to research on correctional officer (see, e.g., Hepburn, 1985). For these two facilities, response rates for the officers were greater than 62 percent.

reverse coding the inmate-level measure of legitimacy of correctional staff, and then aggregating the individual factor scores to the facility-level (see Table 3). Inclusion of legal cynicism in the final models follows from recommendations from Byrne and Hummer (2008). Legal cynicism is the macro-level cultural aspect of (il)legitimacy (see generally Sampson and Bartusch, 1998). Here it reflects the inmates' collective attitudes about the rules and those who enforce them within a facility, as opposed to individual inmate's perceptions of treatment by the correctional staff.

Statistical Analysis

Based on the sampling methods, all analyses included normalized weights reflecting the inverse of an inmate's odds of selection into the sample. Bi-level models of inmate (level-1) and facility (level-2) effects on each type of misconduct were estimated using HLM 6.0 (Raudenbush, Bryk, Cheong, Congdon, and du Toit, 2004). The prevalence (dichotomous) measures of misconduct were examined with logistic regression, technically "Bernoulli" models, and the incidence (limited count) measures were examined with Poisson regression. Both the prevalence and incidence measures were skewed, requiring the correction for the overdispersion of outcome variances available in HLM 6.0 (see Table 2 for the mean and standard deviation of each outcome) (Osgood, 2000; Raudenbush and Bryk, 2002).

The first step in each bi-level analysis involved estimating an unconditional model in order to (a) derive estimates of variance in each outcome existing at each level of analysis, and (b) determine whether the between-facility estimates were significant ($p < .05$). The significance of the between-facility estimate is a necessary pre-requisite to modeling the level-2 outcomes (misconduct rates across facilities, adjusted for compositional differences in inmate populations based on the level-1 predictors). Significant variance in each outcome at level-2, reflected by

whether the level-1 model intercepts differed significantly between facilities, indicated significant differences in either the proportions of inmate who engaged in misconduct (prevalence) or the average number of times inmates engaged in misconduct (incidence).

Random coefficient models of inmate (level-1) effects were estimated next, for each of the level-1 predictors, allowing these effects (in conjunction with the level-1 model intercepts) to vary randomly across facilities. These models revealed whether the inmate-level effects on misconduct varied significantly across facilities ($p < .05$), which would suggest stronger effects in some facilities versus others. Establishing such differences is a necessary pre-requisite for estimating cross-level interaction effects (i.e., to examine whether differences in the level-1 effects across facilities might correspond with differences in the characteristics of those facilities). Measures were group mean-centered in order to remove between-facility variation in inmate characteristics that might have corresponded with differences in misconduct rates across facilities. The drawback to this strategy is that it offers perhaps overly conservative tests of level-1 effects versus more liberal tests of level-2 effects. However, it also reduces the odds of finding spurious level-1 effects due to unmeasured facility effects that might also be related to compositional differences in inmate populations across facilities. Due to the limited amount of facility-level effects that could be included in the model and the different odds of selection into the facilities included in this study, group mean-centering should provide the least biased estimates overall.⁷

The third step entailed estimation of the “intercepts-as-outcome” models, providing the main effects of facility characteristics on the outcomes at level-2 (e.g., misconduct rates, mean number of incidents per facility). All level-1 predictors were included from the previous step, except that

⁷ The variable female was not group mean-centered and was not treated as random because gender was a constant within facilities. For all of the analyses performed for this study, these effects were fixed across facilities.

any effects that did not vary significantly were “fixed” at this stage. The final step involved estimating “intercepts- and slopes-as-outcomes” models, where facility-level effects on the varying level-1 coefficients were estimated.

Chapter 5

FINDINGS

This chapter contains the result of the analyses of the prevalence and incidence of each of the three types of misconduct (violent offenses, drug offenses, other nonviolent infractions). The level-1 (inmate) models are described in tables 4 (violent offenses), 6 (drug offenses), and 8 (other nonviolent infractions). The corresponding level-2 (facility) main and cross-level interaction effects are contained in tables 5 (violent offenses), 7 (drug offenses), and 9 (other nonviolent infractions).

Violent Offenses

Before delving into the results from the random coefficients model of the prevalence of violent offenses, it is important to note that a model of the incidence of violent offenses (research questions 2 and 5) was not estimated. Examination of the distribution of violent offenses revealed that within the six month study period, only 33 inmates (< 1 percent) committed more than one violent offense. It could be that inmates who committed violent misconduct were placed in disciplinary housing for longer periods of time than those inmates who committed less serious forms of misconduct. Placement in disciplinary housing would have necessarily restricted inmates' opportunities to commit additional violent offenses within the six month study period. There may also be fewer opportunities to commit violent misconduct in general, and so the likelihood of inmates engaging in violent misconduct more than once within a six month period of time would generally be lower to begin with. In any case, modeling the incidence of violent offenses would have yielded the same results as those derived from the model of the prevalence of violent offenses.

Regarding research question 1, the random coefficient model (Table 4) revealed that age and sex (female) were negatively related to the prevalence of violent misconduct. Inmates incarcerated for a violent offense and those who had served more time were also less likely to commit a violent offense. The number of visits an inmate received per month and whether they were designated as a gang member were inversely related to the likelihood of violent misconduct. Similarly, inmates who perceived the correctional staff as more legitimate were less likely to have committed a violent offense. An inmates' race (African American), their number of conventional behaviors, whether they had used drugs in the month before arrest, been previously incarcerated, incarcerated for a property offense, and their number of hours at a facility work assignment had no effect on the prevalence of violent offenses.

The analysis of violent misconduct revealed that both inmates' pre-incarceration characteristics as well as aspects of their incarceration were relevant for explaining variation in this outcome. Regarding pre-incarceration characteristics, inmates who were younger, male, or had been incarcerated for non-violent offenses were more likely to commit a violent misconduct. The more time an inmate had served, the number of visits they received, and their perceptions of the legitimacy of the correctional staff were aspects of inmates' incarceration experiences that were associated with lower odds of engaging in a violent offense. Inmates' designation as gang members, which was associated with lower odds of committing violent misconduct, could be considered either a pre-incarceration characteristic or an institutional characteristic. Although most inmates are designated as gang members during their admission to facilities in Ohio, other inmates are identified through their behaviors and routines in prison.

Table 4 illustrates that the relationships between a number of the inmate-level predictors and violent misconduct varied significantly across facilities (research question 3). Specifically, the

Table 4. Random Coefficient Models Predicting Violent Offenses

Level-1 Predictors	β	Prevalence	
		SE	Reliability
Intercept	-5.82		.865
Age	-.05*	(.02)	.642
Female	-.49*	(.23)	
African American	.35	(.26)	.519
Conventional behaviors	-.44	(.23)	.672
Used drugs in month before arrest	-.68	(.43)	.738
Prior incarceration	.17	(.24)	.539
Incarcerated for a violent offense	-1.38**	(.51)	.666
Incarcerated for a property offense	1.27	(.68)	.756
Time served (in months)	-.004*	(.002)	
Number of hours at work assignment	-.03	(.02)	.742
Number of visits per month	-.38**	(.12)	.574
Gang member	-1.25**	(.51)	.638
Legitimacy of correctional staff	-.42*	(.20)	.696
N_1	3,884		
Proportion variation within facilities	.55		

Notes: Bernoulli model of prevalence of violent offenses.
 Reliabilities reported for effects varying across facilities ($p \leq .05$).
 ** $p \leq .01$; * $p \leq .05$.

level-1 effects for age, conventional behaviors, used drugs in month before arrest, prior incarceration, incarcerated for violent offense, incarcerated for property offense, number of hours at work assignment, number of visits per month, gang member, and legitimacy of correctional staff all varied across facilities ($p \leq .001$). The effect of African American also varied across facilities, although the magnitude of the differences between the coefficients was slightly smaller ($p \leq .01$). Only the relationship between time served and violent misconduct did not vary across facilities. Recall that the effect of an inmate's sex was not permitted to vary in any of the analyses because it was a constant within facilities.

Turning to the level-2 main effects (research question 4), Table 5 shows that facility environments with larger proportions of maximum security inmates had higher levels of violent misconduct. Facilities with a more racially heterogeneous staff had lower levels of violent offenses. Legal cynicism had no effect on the rate of violent misconduct. It is also worth mentioning that a considerable amount of the variation in violent offenses (45 percent) was between facilities and the two significant predictors accounted for 37 percent of that variation.

The significant differences in the level-1 effects across facilities that were discussed above suggest that those effects become stronger in some facilities versus others. Establishing these between-facility differences in the inmate-level relationships permitted an examination of facility-level conditioning effects on the randomly varying level-1 effects (the cross-level interaction effects from research question 6). Only the level-1 effects that were significantly conditioned by level-2 effects are displayed in Table 5.⁸

⁸ Cross-level interaction models were not estimated for the type of offense (violent or property) inmates were incarcerated for, prior incarceration, or pre-arrest drug use because these variables were included to measure continuity in behavior. If behaviors are continuous, then there is no theoretical reason to expect the relationships between measures of behavioral continuity and misconduct would be conditioned by the facility-level predictors examined here.

Table 5. Facility-Level Effects on Violent Offenses (Intercept) and Random Level-1 Effects (Slopes)

Level-2 Predictors	Prevalence	
	γ	SE
<u>Main Effects</u>		
Level-1 intercept as outcome	-4.31	
Proportion inmates maximum security	1.95***	(.38)
Racial heterogeneity of correctional staff	-2.67**	(.76)
Legal cynicism	.83	(.57)
Proportion variation between facilities	.45	
Proportion variation between facilities explained	.37	
<u>Cross-level Interaction Effects</u>		
<i>Level-1 coefficient for Age as outcome</i>		
Proportion inmates maximum security	.13**	(.05)
Racial heterogeneity of correctional staff	-.14	(.08)
Legal cynicism	-.05	(.04)
<i>Level-1 coefficient for African American as outcome</i>		
Proportion inmates maximum security	.46	(.26)
Racial heterogeneity of correctional staff	2.07**	(.77)
Legal cynicism	.04	(.71)
<i>Level-1 coefficient for Number of Hours at Work Assignment as outcome</i>		
Proportion inmates maximum security	-.09***	(.02)
Racial heterogeneity of correctional staff	.09**	(.03)
Legal cynicism	.03	(.03)
<i>Level-1 coefficient for Number of Visits Per Month as outcome</i>		
Proportion inmates maximum security	.40*	(.17)
Racial heterogeneity of correctional staff	.31	(.40)
Legal cynicism	.05	(.25)
N_2	33	

Notes: Level-1 intercepts and slopes estimated from a Bernoulli model of prevalence of violent offenses.

*** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$.

The relationship between age and the prevalence of violent offenses was conditioned by the proportion of maximum security inmates. The effect became stronger in facility environments with higher proportions of maximum security inmates. Although the effect of African American was not significant overall, the positive coefficient became stronger in facilities with a more racially heterogeneous staff. Similarly, even though the level-1 relationship between number of hours at work assignment and violent misconduct was not significant overall, it varied in magnitude by the racial heterogeneity of the correctional staff. Less heterogeneity coincided with a stronger inverse relationship between the number of hours at a work assignment and violent misconduct. The effect of number of hours at work assignment also varied by security level, with stronger inverse effects in facilities with higher proportions of maximum security inmates. By contrast, the inverse effect of number of visits per month became stronger in facilities with lower proportions of maximum security inmates.

Drug Offenses

An inspection of the distribution of the incidence of drug offenses revealed that, much like violent offenses, too few ($N = 10$) inmates committed more than one drug offense during the six month study period to warrant a separate analysis of the number of drug offenses an inmate was found guilty of (research questions 2 and 5). The ODRC has a strict zero tolerance policy regarding drugs or alcohol within its institutions. Inmates who are found guilty of drug related offenses are required to complete a three month mandatory substance abuse program. Second time offenders are required to complete a six month program. Within the program, drug testing is more frequent and opportunities for additional drug related misconduct are severely limited. Facilities also have the discretion to add additional sanctions on top of the mandatory program completion, and the interviews with the wardens of the facilities revealed that several of them do.

For all of these reasons, as well as the potential benefits of the treatment programs themselves, it seems unlikely that inmates would have had the opportunity, or desire, to engage in drug misconduct more than once within a six month period. Similar to the analysis of violent offenses, only the prevalence of drug offenses was examined.

Concerning research question 1, the random coefficients model (table 6) revealed that females and inmates involved in more conventional behaviors were less likely to commit drug offenses. Inmates who used drugs prior to their arrest were also more likely to engage in substance use inside the facility. Inmates designated as gang members and those who perceived the correctional staff as more legitimate were less likely to commit drug misconduct. Age, race (African American), prior incarceration, incarcerated for violent offense, incarcerated for a property offense, time served, the number of hours at work assignment, and the number of visits per month had no effect on this type of misconduct.

Much like the analysis of violent misconduct, the model of drug offenses revealed that pre-incarceration characteristics of inmates and aspects of their incarceration were significantly related to this outcome. Male inmates and those inmates who used drugs or were involved in fewer conventional behaviors prior to their incarceration were more likely to commit drug offenses. Related to their incarceration experiences, inmates who perceived the correctional staff as more legitimate were less likely to commit misconduct. Similar to the model of violent offenses, being designated a gang member (based on behavior before or during incarceration) was associated with a lower likelihood of drug misconduct.

The relationships between several of the inmate-level predictors and drug misconduct varied across facilities (research question 3). Table 6 reveals that the level-1 effects for age, African American, conventional behaviors, used drugs in month before arrest, prior incarceration,

Table 6. Random Coefficient Models Predicting Drug Offenses

Level-1 Predictors	β	Prevalence	
		SE	Reliability
Intercept	-9.69		.714
Age	-.01	(.02)	.620
Female	-2.98 ^{***}	(.37)	
African American	-.90	(.60)	.732
Conventional behaviors	-1.22 [*]	(.49)	.813
Used drugs in month before arrest	1.63 ^{***}	(.37)	.586
Prior incarceration	-1.23	(.90)	.798
Incarcerated for a violent offense	.20	(.21)	
Incarcerated for a property offense	.34	(.41)	
Time served (in months)	-.01	(.005)	
Number of hours at work assignment	-.05	(.03)	.761
Number of visits per month	-.07	(.12)	.583
Gang member	-1.86 ^{***}	(.48)	.548
Legitimacy of correctional staff	-.76 ^{***}	(.18)	.586
N_1	3,884		
Proportion variation within facilities	.55		

Notes: Bernoulli model of prevalence of drug offenses.
 Reliabilities reported for effects varying across facilities ($p \leq .05$).
^{***} $p \leq .001$; ^{**} $p \leq .01$; ^{*} $p \leq .05$.

number of hours at work assignment, number of visits per month, gang member, and legitimacy of correctional staff all varied across facilities ($p \leq .001$). The relationships between drug misconduct and incarcerated for a violent offense, incarcerated for a property offense, and time served did not vary across facilities.

Consistent with the analysis of violent offenses, the unconditional model revealed that 45 percent of variation in drug misconduct was between facilities. Unlike in the analysis of violent misconduct, however, the intercept as outcome model (Table 7) revealed that the proportion of maximum security inmates and the racial composition of the correctional staff had no effect on drug misconduct. Legal cynicism was positively related to the level of drug offenses. That is, in facility environments where beliefs about the legitimacy of the facility rules and staff were weaker, drug misconduct was more pervasive. Legal cynicism accounted for 23 percent of the variation in the level of drug offenses (research question 4). In sum, each facility-level measure examined was significant in only one of the two models described so far (violent or drug offenses).

Turning to research question 6, the level-1 relationships that varied across facilities (Table 6) were examined for possible cross-level interaction effects (whether differences in the strength of the level-1 relationships coincided with differences in the scales of the facility-level predictors). Similar to the analysis of violent offenses, only those level-1 effects which coincided with significant cross-level interactions are reported in Table 8.

The inmate-level effect of race (African American) was conditioned by the racial heterogeneity of the staff and the level of legal cynicism. The inverse effect was considerably stronger in both facilities with a less racially diverse staff and facilities with lower levels of legal

Table 7. Facility-Level Effects on Drug Offenses (Intercept) and Random Level-1 Effects (Slopes)

Level-2 Predictors	Prevalence	
	γ	SE
<u>Main Effects</u>		
Level-1 intercept as outcome	-8.41	
Proportion inmates maximum security	-1.03	(.67)
Racial heterogeneity of correctional staff	.32	(1.35)
Legal cynicism	3.21***	(.53)
Proportion variation between facilities	.45	
Proportion variation between facilities explained	.23	
<u>Cross-level Interaction Effects</u>		
<i>Level-1 coefficient for African American as outcome</i>		
Proportion inmates maximum security	-5.56	
	-1.34	(.90)
Racial heterogeneity of correctional staff	13.26***	(1.96)
Legal cynicism	4.15**	(1.31)
<i>Level-1 coefficient for Conventional Behaviors as outcome</i>		
Proportion inmates maximum security	-.44	
	-3.92*	(1.73)
Racial heterogeneity of correctional staff	-.93	(1.51)
Legal cynicism	1.29	(1.02)
<i>Level-1 coefficient for Number of Visits Per Month as outcome</i>		
Proportion inmates maximum security	-.12	
	.89*	(.37)
Racial heterogeneity of correctional staff	-.32	(.55)
Legal cynicism	-.79*	(.34)
<i>Level-1 coefficient for Legitimacy of correctional staff as outcome</i>		
Proportion inmates maximum security	.004	
	.39	(.23)
Racial heterogeneity of correctional staff	-1.58**	(.56)
Legal cynicism	-.33	(.44)
N_2	33	

Notes: Level-1 intercepts and slopes estimated from a Bernoulli model of prevalence of drug offenses.

*** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$.

cynicism among the inmate population.⁹ The inverse effect of conventional behaviors became stronger in environments with larger proportions of maximum security inmates. On the other hand, the inverse effect of visitation was stronger in facilities with lower proportions of maximum security inmates. The inverse effect of visitation also became stronger in facilities with higher levels of legal cynicism. Finally, the relationship between legitimacy and the prevalence of drug misconduct became stronger in facilities with a less racially diverse staff.

Other Nonviolent Infractions

Models of both the prevalence and incidence of nonviolent infractions (excluding drug offenses) were estimated. The random coefficients models referred to in the first two research questions are contained in Table 8. Age, time served, and the perceived legitimacy of the correctional staff were inversely related to both the prevalence and incidence of nonviolent infractions. Race (African American) was positively related to both the prevalence and incidence of nonviolent infractions. Female inmates committed fewer infractions than males, but an inmate's sex had no effect on an inmate's likelihood of engaging in nonviolent misconduct. Similarly, conventional behaviors was inversely related to the number of nonviolent infractions, but conventional behaviors had no effect on the odds of committing this type of offense. The inmate-level predictors used drugs in the month before arrest, prior incarceration, incarcerated for a violent offense, incarcerated for a property offense, number of hours at work assignment, number of visits per month, and gang membership were unrelated to either the prevalence or incidence of nonviolent misconduct.

⁹ The size of the coefficient for the effect of racial heterogeneity of correctional staff on the level-1 relationship between African American and the prevalence of drug offenses suggests the possibility of collinearity. To address this possibility, separate models were estimated first, without the racial heterogeneity of correctional staff included, and second, without the level-1 coefficient for African American as an outcome. No substantive differences in the other findings reported in Table 7 were observed in either of these analyses.

Table 8. Random Coefficient Models Predicting Other Nonviolent Infractions

Level-1 Predictors	Prevalence			Incidence		
	β	SE	Reliability	β	SE	Reliability
Intercept	-.39		.921	-.83		.928
Age	-.03***	(.01)	.642	-.03***	(.01)	.665
Female	.07	(.16)		-.46*	(.22)	
African American	.32*	(.15)	.519	.27*	(.12)	.607
Conventional behaviors	-.11	(.07)		-.14**	(.05)	.348
Used drugs in month before arrest	.18	(.11)		.11	(.07)	
Prior incarceration	.08	(.07)		.09	(.08)	
Incarcerated for a violent offense	.14	(.12)		.03	(.12)	.666
Incarcerated for a property offense	.46	(.23)	.756	.31	(.16)	.756
Time served (in months)	-.004***	(.001)		-.004***	(.001)	
Number of hours at work assignment	-.01	(.01)	.503	-.003	(.003)	.364
Number of visits per month	-.01	(.03)		-.02	(.02)	
Gang member	.08	(.14)		.04	(.08)	
Legitimacy of correctional staff	-.23***	(.06)	.352	-.20***	(.03)	
N_1	3,884			3,884		
Proportion variation within facilities	.75			.89		

Notes: Bernoulli model of prevalence of other nonviolent infractions; Poisson model of incidence of other nonviolent infractions.

Reliabilities reported for effects varying across facilities ($p \leq .05$).

*** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$.

Consistent with the violent and drug offense models, the analyses of nonviolent infractions revealed that pre-incarceration characteristics and elements of inmates' incarceration experiences were significant predictors of these outcomes. Younger inmates and African American inmates were more likely to commit nonviolent infractions and also committed more nonviolent infractions overall. Male inmates and inmates involved in more conventional behaviors prior to incarceration also committed fewer nonviolent infractions. Regarding aspects of incarceration, inmates who had served less time and inmates who perceived the correctional staff as more legitimate had lower odds of engaging in nonviolent misconduct and committed fewer of these offenses overall.

Compared to the analyses of violent and drug misconduct, the analyses of the prevalence and incidence of nonviolent misconduct revealed that fewer of the relationships between the inmate-level predictors and these outcomes varied across facilities (research question 3). The level-1 effects of age, incarcerated for a property offense, and number of hours at work assignment on both the prevalence and incidence of nonviolent infractions varied significantly across facilities ($p \leq .001$). The relationships between an inmate's race and both measures of nonviolent misconduct also varied significantly across facilities ($p \leq .01$), although the differences in these level-1 relationships were greater in the model predicting the incidence of nonviolent misconduct ($p \leq .001$). The inmate-level effects of conventional behaviors and incarcerated for a violent offense on the incidence of nonviolent misconduct varied significantly across facilities ($p \leq .01$), while the level-1 effect of perceived legitimacy of the correctional staff varied significantly across facilities only in the analysis of the prevalence of nonviolent infractions ($p \leq .001$). The relationships between both measures of nonviolent misconduct and pre-arrest drug use, prior

incarceration, time served, number of visits per month, and gang membership did not vary significantly in either model.

The analyses of facility-level main effects (research questions 4 and 5) contained in Table 9 show that the racial heterogeneity of the staff was negatively related to both the proportion of inmates who engaged in nonviolent misconduct (prevalence) and the average number of times an inmate committed nonviolent misconduct (incidence). Also, higher levels of legal cynicism coincided with higher levels and rates of nonviolent infractions. The proportion of maximum security inmates had no effect on the prevalence on nonviolent misconduct, but facility environments with higher proportions of maximum security inmates had higher numbers of infractions per inmate. Compared to violent offenses and drug offenses, much less of the variation in other nonviolent infractions was between facilities. For the prevalence model, 25 percent of the variation was between facilities. For the incidence model, 11 percent of the variation in nonviolent infractions fell between facilities. The significant facility-level predictors accounted for 6 percent of the level-2 variation in the prevalence of nonviolent misconduct and 11 percent of the level-2 variation in the incidence of misconduct.

The between-facility differences in the level-1 effects that were identified above suggest that those inmate-level relationships became stronger in some facilities compared to others.

Observing these between-facility differences in the level-1 relationships permitted the examination of facility-level effects on the significantly varying level-1 coefficients (the cross-level interaction effects from research question 6). Consistent with the estimation of the cross-level interaction effects in the analyses of violent and drug offenses, only the level-1 effects that were significantly conditioned by level-2 effects are displayed in Table 9.

Table 9. Facility-Level Effects on Other Nonviolent Infractions (Intercepts) and Random Level-1 Effects (Slopes)

Level-2 Predictors	Prevalence		Incidence	
	γ	SE	γ	SE
<u>Main Effects</u>				
Level-1 intercepts as outcomes	.61		.40	
Proportion inmates maximum security	-.60	(.48)	.84 ^{***}	(.16)
Racial heterogeneity of staff	-1.57 [*]	(.63)	-1.84 ^{***}	(.43)
Legal cynicism	.63 [*]	(.31)	.50 ^{**}	(.17)
Proportion variation between facilities	.25		.11	
Proportion variation between facilities explained	.06		.12	
<u>Cross-level Interaction Effects</u>				
<i>Level-1 coefficients for Age as outcomes</i>				
Proportion inmates maximum security	-.04		-.02	
	.09 ^{***}	(.02)	.09 [*]	(.03)
Racial heterogeneity of staff	-.02	(.05)	-.06	(.04)
Legal cynicism	-.05 [*]	(.02)	-.06 ^{***}	(.02)
<i>Level-1 coefficient for Conventional Behaviors as outcome</i>				
Proportion inmates maximum security			-.08	
			.05	(.06)
Racial heterogeneity of staff			-.33 [*]	(.16)
Legal cynicism			-.38 ^{***}	(.09)
<i>Level-1 coefficient for Number of Hours at Work Assignment as outcome</i>				
Proportion inmates maximum security	-.02			
	-.02	(.01)		
Racial heterogeneity of staff	.06 [*]	(.03)		
Legal cynicism	.03	(.02)		
N_2	33		33	

Notes: Level-1 intercepts and slopes estimated from a Bernoulli model of prevalence of other nonviolent infractions and a Poisson model of incidence of other nonviolent infractions.

*** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$

The inverse effect of age became stronger in facilities with lower proportions of maximum security inmates, and in facilities with higher levels of legal cynicism among the inmates. Conditioning effects on the relationships involving conventional behaviors (incidence model only) and number of hours at work assignment (prevalence model only) were also observed. Specifically, the inverse effect of conventional behaviors on the number of nonviolent rule infractions became stronger in facilities with a more racially heterogeneous staff and in facility environments which exhibited a higher level of legal cynicism. Although the effect of number of hours at work assignment was not significant overall, there was a stronger inverse effect of work assignment hours on the prevalence of nonviolent misconduct in facilities with a less racially heterogeneous staff.

Chapter 6

DISCUSSION

The analyses described in the previous section provide some new insights into the relative effects of inmate- and facility-level characteristics on the prevalence and incidence of different types of inmate misconduct. In this section, the findings from the various analyses are summarized and discussed in light of prior research on indicators of prison disorder. Before doing so, however, a couple of limitations of the study are worth noting.

First, the data analyzed for this study were collected from only one state. Many of the other multi-level studies involved the use of samples from different states (e.g., Huebner, 2003; Jiang and Winfree, 2006; Lahm, 2008; Steiner and Wooldredge, 2008a; Steiner, 2009), and so the discussion of differences in findings across studies must be tempered by the fact that the inmates studied here were all sentenced under the same state laws and confined in facilities primarily operated by the same state department of corrections. Thus, the inmates and facilities might be more homogenous groups than those that have been examined in many of the other studies. The homogeneity across the inmate and facility samples might also restrict the generalizability of the findings to Ohio and perhaps those states which are similar to Ohio.

Although the inmate-level sample was large enough to support estimation of a large number of individual effects on misconduct, the facility-level sample was restricted to only 33 facilities. The restricted degrees of freedom at the facility-level prohibited the inclusion of more than three predictors in the final models. Even though steps were taken to make sure the final set of facility-level predictors maintained the strongest effects on the level of misconduct, it is certainly possible that other factors could also be relevant to an explanation of misconduct. This

possibility, along with the related notion that some of the facility-level predictors included in the final models may also have tapped into other concepts for which measures could not be included, should be kept in mind when interpreting the level-2 effects.

Table 10 summarizes the main effects across the four types of misconduct examined here. At the inmate-level, age, sex (female), and time served were related to misconduct in three of the four models. The finding that younger inmates were more likely to commit misconduct is consistent with extant research on inmate deviance (e.g., Camp et al., 2003; Cunningham and Sorensen, 2006; Gaes and McGuire, 1985; Gaes et al., 2002; Goetting and Howsen, 1986; Kruttschnitt and Gartner, 2005; Lahm, 2008; MacKenzie, 1987; McCorkle, 1995; Sorensen et al., 1998; Steiner and Wooldredge, 2008a; Wooldredge, 1994; Wooldredge et al., 2001). Younger inmates may be more likely to engage in misconduct because they often have fewer conventional relationships (with spouses, children, friends) and are less likely to be involved in activities reflecting more conformist lifestyles such as full-time employment (Jensen, 1977; Wooldredge et al., 2001). Younger inmates may also be more likely to be victimized (Wooldredge, 1998; Wolff, Shi, Blitz, and Siegel, 2007), which could contribute to their heightened fear of others (MacKenzie, 1987). Inmates' fearfulness may increase the likelihood of conflicts with other inmates or staff because these more anxious inmates may view the conflicts as a way of protecting themselves. Of course, more direct measures of fear are necessary to test this idea directly.

Consistent with most of the studies involving pooled samples of male and female inmates (e.g., Camp et al., 2003; Harer and Langan, 2001; McCorkle, 1995), female inmates were less likely to commit more serious misconduct (violent, drug), but they were equally likely as males

Table 10. Summary of Main Effects on Different Types of Inmate Misconduct

	Violent	Drug	Prevalence Other Nonviolent	Incidence Other Nonviolent
<u>Level-1: Inmates</u>				
Age	-	ns	-	-
Female	-	-	ns	-
African American	ns	ns	+	+
Conventional behaviors	ns	-	ns	-
Used drugs in month before arrest	ns	+	ns	ns
Prior incarceration	ns	ns	ns	ns
Incarcerated for a violent offense	-	ns	ns	ns
Incarcerated for a property offense	ns	ns	ns	ns
Time served (in months)	-	ns	-	-
Number of hours at work assignment	ns	ns	ns	ns
Number of visits per month	-	ns	ns	ns
Gang member	-	-	ns	ns
Legitimacy of correctional staff	-	-	-	-
<u>Level-2: Facilities</u>				
Proportion inmates maximum security	+	ns	ns	+
Racial heterogeneity of correctional staff	-	ns	-	-
Legal cynicism	ns	+	+	+

Notes: + = positive relationship; - = negative relationship; ns = not significant.

to engage in less serious misconduct. Once the frequency of less serious (nonviolent) misconduct was considered, however, female inmates committed fewer infractions than males. These findings from a mixed sample of males and females do not suggest that the predictors of misconduct by male and female inmates are different, only that females generally commit less misconduct overall. Female inmates may have stronger ties than males to conventional others (e.g., children) which could make them less likely to commit misconduct because they have more to lose by engaging in such behaviors (e.g., restrictions on visitation). It could also be that the environments of facilities for women are more relaxed than facilities for males, and these environmental differences could contribute to less anxiety and stress among female inmates. Higher levels of stress or anxiety can increase the likelihood of misconduct (Toch et al., 1989). Direct measures of such emotions might be useful to examine in future research in order to shed light on these speculations.

The effects observed for amount of time served might seem curious when considered alongside the findings from many of the studies discussed earlier. Most studies have observed a positive relationship between time served and indicators of prison disorder (e.g., Jiang and Winfree, 2006; Kruttschnitt and Gartner, 2005; Kruttschnitt and Vuolo, 2007; Simon, 1993). Scholars have suggested that inmates who have served longer periods of time are more likely to commit misconduct because when individuals are incarcerated they often develop values counter to those of the larger society and the strength of the oppositional beliefs is a function of the amount of time they have served (e.g., Clemmer, 1940; Kruttschnitt and Gartner, 2005). It is important to remember, however, that the outcome measures examined in many of the existing studies did not include a fixed period of time. Instead, these studies focused on misconduct committed by inmates since their admission to prison. The outcomes examined for this study

only included behaviors which occurred in the six months prior to the survey date. The findings here are more consistent with those derived from longitudinal studies. Researchers using longitudinal designs have uncovered a pattern where maladaptation occurs more frequently in the early part of inmates' imprisonment and declines with time served (see, e.g., Mackenzie, Robinson and Campbell, 1989; Toch et al., 1989). Other researchers have uncovered an inverted U-shaped pattern of adjustment, where maladjustment is more common in the middle part of an inmate's prison term (Wheeler, 1961b). Regardless of which, the findings here do not support the idea that inmates become more defiant (assuming misconduct is an indicator of defiance) the longer they are in prison. It could be that inmates who have lived in prisons for longer periods of time have found their niche or learned to cope with the environment that is institutional life. By contrast, newly admitted inmates may often be younger inmates who are more prone to misconduct as determined by this study and many others (e.g., Huebner, 2003; Lahm, 2008; Steiner and Wooldredge, 2008a; Toch et al., 1989; Wooldredge et al., 2001). As discussed above, newly admitted and younger inmates might also be more likely to be victimized (e.g., Wooldredge, 1998; Wolff et al., 2007) which may contribute to perceptions of prison as more dangerous, making those inmates more likely to respond negatively (MacKenzie, 1987; MacKenzie et al., 1989; Toch et al., 1989; Wooldredge, 1999). Regardless, the findings here support the conclusions derived from longitudinal research on inmate careers and suggest that the existing findings for the effects of time served and sentence length should be considered in light of the time period attached to the outcome(s) examined.¹⁰

This study was the first to consider the potential effect of inmates' perceived legitimacy of the correctional staff on inmate misconduct. Across all the outcomes examined here, inmates

¹⁰ Sentence length could not be included in the analyses described in the previous section because it was collinear with time served ($r = .637$).

who perceived the correctional staff as more legitimate engaged in less misconduct. In other words, inmates who held more favorable beliefs regarding the facility rules and the staff who enforce them were less likely to commit any type of misconduct and committed fewer infractions over all. These findings support Bottoms's (1999) contention regarding the relevance of legitimacy of the correctional staff and are consistent with Vuolo and Kruttschnitt's (2008) findings regarding the importance of inmates' perceptions of the correctional staff. The observed relevance of legitimacy is also consistent with the credo of "firm, fair, and consistent" treatment by staff and administrators, which resonated from many of the wardens interviewed during this study when they were asked how best to achieve inmate compliance with the rules. Taken together, these findings necessitate the examination of direct measures of the efficacy and quality of correctional staff (e.g., legitimacy) in future studies of inmate behavior. An equally important avenue of future inquiry could be to develop an understanding of the sources of inmates' perceptions of the legitimacy of correctional staff. It could be, for example, that inmates' perceptions of how they were treated procedurally and relative to others during incidents of misconduct shape their perceptions regarding the legitimacy of the correctional staff (more generally, see Tyler, 1990).

Unlike most other studies, the analyses reported here indicated that inmates' criminal history and committing offense type had little or no effect on their likelihood of engaging in deviance inside Ohio prisons. In fact, inmates who were incarcerated for a violent offense were less likely to commit violent misconduct, which is counterintuitive from an importation perspective. It could be that the models presented here were better specified than the models contained in previous studies. After all, Bottoms (1999) did suggest that all other influences of prison disorder would be mediated by staff deployment, approaches, and skills, along with the legitimacy of the

correctional staff. If this is the case, then the effects observed for measures of offense type and criminal history in other studies could have been spurious. Given the direct effects of other factors (e.g., age, gender) observed here, however, it is also likely that the findings are a function of the fixed period of time attached to the outcomes examined. Inmates incarcerated for violent offenses would inevitably serve longer sentences and therefore could be inmates who have simply served more time and aged out of committing misconduct. Similarly, inmates who have previously been incarcerated would also be more likely to be older and more experienced inmates, potentially facilitating adaptation to the prison environment sooner in their sentence than first-time prison admits. Older inmates who have served more time could be less likely to engage in misconduct (see also Toch et al., 1989). Studies that consider all misconduct committed after admission or misconduct committed in the immediate period of time after admission would be more likely to capture the behaviors of these more experienced individuals in the early part of their prison term.

Similar to the earlier discussion of time served (or sentence length), it seems that findings for offense and criminal history variables may need to be considered in light of the specific outcomes examined. The reality that faces prison administrators is that every day they are confronted by inmates who have served a varied amount of time. Knowledge regarding what factors influence misconduct in the early part of an inmate's stay is valuable for developing strategies to deal with recently admitted inmates, but does little to inform practices for handling inmates who have served longer periods of time. In light of recent shifts in state sentencing practices (see, e.g., Austin and Irwin, 2001), most inmates are serving longer periods of time, and so more studies are needed to examine what factors are relevant over the course of inmates' prison terms, including the period immediately after admission.

Unlike the measure of official criminal history, the findings from this study do support the inclusion of other measures of pre-incarceration antisocial behaviors. Specifically, inmates who used drugs in the month before their arrests were more likely to engage in drug misconduct in prison. This offense specific finding, along with more robust findings derived from other studies (e.g., Jiang and Winfree, 2006; Steiner and Wooldredge, 2008a), suggest that pre-incarceration drug use may be an important factor to consider in studies of inmate deviance. It could be that measures such as pre-arrest drug use tap into more general tendencies toward antisocial behavior that are more proximate reflections of behavioral continuity relative to official measures of offense type and criminal history. Other researchers may also want to broaden the range of pre-incarceration antisocial behaviors. For example, Lahm (2008) uncovered a relationship between inmates' perceptions of their own aggressiveness and the incidence of assaults on other inmates.

Inmates' who were involved in more conventional behaviors (e.g., employment, marriage) before incarceration were less likely to commit drug offenses and committed fewer nonviolent misdeeds overall. Unfortunately, these results only seem to add to the varied findings across studies regarding the effects of measures of involvement in conventional behaviors or social achievement (see, e.g., Cao et al., 1997; Goetting and Howsen, 1986; Harer and Langan, 2001; Huebner, 2003; McCorkle, 1995; Kruttschnitt and Gartner, 2005; Wooldredge et al., 2001). It could be that the measures of involvement in more conventional behaviors that are often used in studies of inmate misconduct like this one (e.g., married, employed) actually proxy more direct concepts such as an inmate's commitment to convention in general or their attachments to significant others. The indirect nature of the measures that have been used across studies may be contributing to the inconsistency of the effects observed in related models. The findings here,

along with those from earlier studies, do support the inclusion of more direct measures of commitment to convention or attachment to others in future studies of the subject.

Inmates' involvement in institutional programming such as a facility work assignment had no effect on the prevalence or incidence of misconduct. This finding runs counter to other studies (e.g., Steiner and Wooldredge, 2008a), and suggests that further examination of the relevance of measures of involvement in institutional programming is warranted. A potentially relevant factor to consider in this regard could be the quality of the facility programs inmates are involved in (see, e.g., French and Gendreau, 2006).

Jiang and Winfree (2006) found that inmates' visitation with children had no effect on the incidence of misconduct. Lahm (2008) observed that visitation had no effect on inmate assaults. The analyses described here revealed that visitation reduced the likelihood of violent offenses, which counters Lahm's (2008) finding. Visitation could serve to remind inmates that there is much to lose by engaging in violence in prisons (e.g., loss of privileges, later release date). Or, more generally, visitation might (again) tap into conventional ties to outsiders. The mixed findings across studies suggest the importance of visitation as it pertains to inmate violence requires additional examination. By contrast, these analyses revealed that visitation had no effect on drug or nonviolent misconduct, findings that are consistent with Jiang and Winfree (2006). Accordingly, visitation may not be relevant for predicting the likelihood of nonviolent misconduct.

As noted above, findings from existing studies regarding the effect of inmates' race have been mixed, although most studies have observed a positive relationship between minority status and violent misconduct (e.g., Harer and Steffensmeier, 1996; Steiner and Wooldredge, 2008a). The findings here add to the diversity in study findings since no relationship was observed

between an inmate's race and the likelihood of engaging in either violent or drug misconduct. However, an inmates' race (African American) was relevant for predicting both the prevalence and incidence of nonviolent infractions. More studies are needed to determine the significance of race, and perhaps more importantly, why race may be relevant to an explanation of misconduct. For example, it could be that African American inmates are more likely to hold values counter to those of the larger society (see Sampson and Bean, 2006; Sampson and Wilson, 1995; Warner, 2003). African Americans are overrepresented in neighborhoods characterized by concentrated poverty and social isolation (Sampson and Wilson, 1995). Although residents of these disadvantaged neighborhoods may share mainstream cultural values, these values become attenuated within these structural contexts (Sampson and Bean, 2006; Warner, 2003). The conditions in extremely disadvantaged neighborhoods are such that crime is tolerated and expected as a part of daily life (Anderson, 1999; Krivo and Peterson, 1996; Wilson, 1987; Sampson and Wilson, 1995). Feelings of resentment and hostility towards legal authority are also pervasive among residents (Anderson, 1999; Hagan and Albonetti, 1982; Harer and Steffensmeier, 1996; Sampson and Bartusch, 1998). If African American inmates are drawn disproportionately from disadvantaged neighborhoods (Rose and Clear, 1998), then African American inmates may not hold much respect for the rules of a correctional facility because they question the legitimacy of those rules (Harer and Steffensmeier, 1996; Wooldredge et al., 2001). It follows that deviance may be more common among African American inmates because they may bring their ecologically structured beliefs regarding legal authority, crime, and deviance into the prison environment (Harer and Steffensmeier, 1996; Irwin and Cressey, 1962; Irwin, 1980). The mixed findings for the effects of an inmate's race on misconduct could be due to the fact that race is only a structural antecedent of a more proximate influence on misconduct, specifically,

ecologically structured beliefs regarding deviance and law. It could be that these latent beliefs only become relevant in environments which are similar to those in which they were fostered.

Taken with the findings from other studies, the effect of gang membership derived from the results of these analyses may seem unusual. Most studies have revealed that gang members are more likely to engage in deviance (e.g., Berk, Kriegler, and Back, 2006; Gaes et al., 2002; Griffin and Hepburn, 2006), although some studies have not revealed an effect (e.g., Cunningham and Sorensen, 2007). In this study, gang members were less likely to commit either a violent offense or a drug offense. Gang membership was not related to either the prevalence or incidence of nonviolent infractions. Several differences between this study and those mentioned above may help to make sense of the findings observed in this study. The measure of gang membership used here was an “official” designation of an inmate as a gang (security threat group) member. In Ohio, an official designation as a gang member influences an individual’s initial custody score. Custody score, in turn, influences institutional placement. Failure to account for this situation in this study could have led to model misspecification because unmeasured facility-level differences could have contributed to the significance of the level-1 gang membership effect. For example, if gang membership leads to placement in facilities where misconduct is more common (e.g., higher security facilities), the positive environmental effect could also contribute to a positive inmate-level effect of gang membership. To adjust for this situation, the variation in gang membership was restricted to within facilities (through group mean centering) permitting a more conservative test by removing the differences between facilities (e.g., security level) that could also be linked to gang membership.

The discussion above may help account for why a relationship was not observed between gang membership and nonviolent misconduct, but it is still curious that gang members were less

likely to commit violent and drug offenses within facilities. Then again, it is important to remember that the measure of gang membership was an official designation, suggesting the correctional staff were aware which inmates were gang members. This awareness would permit correctional staff to manage those inmates with more care and possibly restrict their opportunities to commit misconduct (e.g., housing and work assignments), particularly violent and drug misconduct. Recall, as well, that the outcomes examined here were restricted to behaviors in the six months prior to the study, which would reduce the likelihood of capturing behaviors after incarceration that led to the designation as a gang member. Indeed, several of the existing studies which have revealed positive effects examined the behavior of inmates during a period of time after their admission (e.g., Berk et al., 2006; Griffin and Hepburn, 2006). It could be that many of the inmates included in this study that were designated as gang members earned the designation behaviorally in the early part of their sentence and consequently had their opportunities to engage in misconduct (particularly violent and drug) reduced due to tighter restrictions. In light of the results observed in these analyses, it seems that the efforts of the correctional staff may be effective at reducing these more serious forms of misconduct. Identification of inmate gang members might need to be considered as an aspect of administrative control.

Across the facility-level models (Table 10), the racial heterogeneity of the staff and legal cynicism were each related to levels of three of the four types of misconduct. Facilities with a higher proportion of inmates classified as maximum security had a higher level of violent misconduct and a higher average number of times inmates engaged in nonviolent misconduct. The findings for the level of maximum security inmates are consistent with much of the research on prison disorder, which suggests that institutions containing more high-risk individuals or

which operate at higher security levels have more violence and higher levels of officially recorded indicators of disorder overall (see, e.g., Baskin, Sommers, and Steadman, 1991; Camp et al., 2003; Hensley, Tewksbury, and Koscheski, 2001; Huey and McNulty, 2005; Huebner, 2003; Jiang and Winfree, 2006; McCorkle et al., 1995; Steiner, 2009; Steiner and Wooldredge, 2008a; Wooldredge and Steiner, 2009).

The finding that facilities with a more racially diverse staff had lower levels of misconduct is generally consistent with those observed by McCorkle et al. (1995) and Camp et al. (2003). A more racially diverse staff may offer a more “normalized” environment for inmate populations that are themselves generally quite diverse (Camp et al., 2003). Facility population statistics revealed that the Ohio inmate population is about 50 percent non-White. Ohio is a racially integrated prison system and the interviews with prison wardens conducted during this study revealed the common perception that achieving racial balance in housing and work assignments contributes to good facility order. Extending this one step further, more normalized prison environments may facilitate the perception of common interests between members of different racial and ethnic groups, thus constituting a mechanism of informal control over inmates. Scholars have also discussed how minority officers may also be more efficacious in working with the inmate population (Britton, 1997; Jacobs and Kraft, 1978). On the other hand, disparity between the racial composition of staff and inmates can fuel inmates’ perceptions of injustice (e.g., Jacobs, 1977; Jacobs and Kraft, 1978). Regardless of the specific mechanism(s), the findings here, along with those derived from other studies (e.g., Camp et al., 2003; McCorkle et al., 1995), suggest that further research into the efficacy of a racially integrated staff is warranted.

In concluding their review of the prison disorder literature, Byrne and Hummer (2008) suggested that an important avenue for future research was to examine the impact of institutional culture on prison disorder. The findings from this study lend support to their observations. Facilities with higher levels of legal cynicism, the measure of institutional culture included here, generally had higher levels of misconduct (a reflection of disorder; as argued in chapters 1 and 2). Prison environments which have higher levels of legal cynicism do not necessarily have fewer inmates that hold mainstream values (e.g., a desire for order), but rather a greater number of inmates who do not necessarily support the mechanisms used by correctional staff to enforce appropriate conduct (more generally, see Sampson and Bartusch, 1999. These cultural beliefs are ecologically shaped, and therefore amenable to change. In light of the findings here, an important avenue of inquiry would be to understand the sources of inmates' legal cynicism, so as to guide prison administrators in developing methods for altering factors that shape these destructive beliefs among inmates under their care. For example, the culture of the correctional staff might influence the inmate culture (Byrne et al., 2008). Officers' views regarding their bases of power could be relevant as an indicator of the institutional culture of staff because how officers perceive their bases of power may influence their means of gaining inmate compliance with facility rules (see Hepburn, 1985, for a discussion of bases of power as they pertain to correctional staff). It could be that more officers view their base of power as coercive in facilities where legal cynicism is higher. On the other hand, in facilities where more officers perceive their base of power as legitimate, legal cynicism may be lower. Similarly, Colvin (2007) has described how the consistent delivery of social support may provide an aura of legitimacy to organizational authorities, which could in turn lower cynicism among subordinates (inmates).

Several of the prior reviews of the literature on inmate adjustment and/or misconduct underscored the potential relevance of interactions between individual characteristics and the environments in which inmates are situated (e.g., Gendreau et al., 1997; Wright and Goodstein, 1989). The inherent difficulty in conducting this type of research has prohibited most researchers from undertaking this recommendation (but see, e.g., Gillespie, 2005; Steiner and Wooldredge, 2008a; Wooldredge et al., 2001). This study involved the use of a rich data set, permitting the reliable estimation of randomly varying coefficients and subsequent testing of possible cross-level interaction effects. A number of themes emerged from these analyses.

Age was a stronger predictor of nonviolent misconduct (excluding drug offenses) in environments with lower proportions of maximum security inmates, a finding generally consistent with Steiner and Wooldredge (2008). Younger inmates were also less likely to commit violent misconduct in facility environments with higher proportions of maximum security inmates. It could be that younger inmates, who were more likely to commit misconduct overall, have more opportunities to engage in such behavior in less secure environments. However, their opportunities to commit misconduct (particularly violent) are restricted in more secure facility environments such as those which typically hold higher proportions of maximum security inmates. Younger inmates were also more likely to engage in nonviolent misconduct in facility environments with higher levels of legal cynicism. In prison environments where legal cynicism is higher, inmates may not hold much respect for the rules of the facility. Younger inmates may be more eager to conform to the beliefs shared by other inmates in such environments, and committing nonviolent infractions (e.g., disrespecting correctional staff, being “out of place”) may be their way of gaining the respect of other inmates.

Although African American inmates were less likely to engage in drug misconduct overall, this effect was weaker in environments with a more racially diverse staff. Similarly, in facilities with a more racially heterogeneous staff, African American inmates were more likely to commit violent misconduct. At first glance, these findings may seem counterintuitive, but racial diversity among the staff may also be more likely in facilities located near urban areas due to the larger pool of minority applicants that are found in those areas (Jacobs and Kraft, 1978). The related discussion below is offered only as a possible explanation for the finding that can only be tested directly with additional measures.

In Ohio, the facilities near urban areas generally contain a more urban African American population because the ODRC attempts to house inmates closer to their homes in order to facilitate reentry planning. An urban background could be relevant to an explanation of prison disorder because inmates drawn from urban areas are also disproportionately selected from disadvantaged areas within those urban areas (Rose and Clear, 1998). In urban areas of disadvantage, residents are more likely to develop values counter to those of the larger society (Sampson and Wilson, 1995; Sampson and Bean, 2006; Wilson, 1987). Crime and deviance are less vigorously condemned and come to be expected as a part of everyday life (Anderson, 1999; Sampson and Bean, 2006). The probability of deviance may be higher among individuals who hold these attenuated cultural values if those individuals bring these values with them into the institutional environment (Harer and Steffensmeier, 1996; Sampson and Wilson, 1995; Warner, 2003; Wooldredge et al., 2001). Within disadvantaged areas, African Americans and other minorities are over-represented (Sampson and Wilson, 1995), which increases the probability that, among those drawn from urban areas of disadvantage, a higher number will be African American. Thus, the conditioning effect of staff heterogeneity on the level-1 effects of an

inmate's race may have resulted from unmeasured compositional effects related to the level of urban backgrounds among the inmate populations in facilities with more racially diverse staff.

Even though African American inmates were less likely to commit a drug offense overall, the effect became weaker in facility environments with higher levels of legal cynicism, which might also reflect the above speculations regarding the conditioning effect of the racial heterogeneity of the staff on the level-1 race (African American) effect. Facility environments with higher levels of legal cynicism may, from a cultural standpoint, be more similar to the urban neighborhoods of greater disadvantage where many African American inmates in Ohio would come from (Rose and Clear, 1998; Sampson and Bartusch, 1998). In environments similar to those in which ecologically shaped beliefs regarding crime and deviance were fostered, the probability of those beliefs becoming relevant to individuals who once held such beliefs (prior to their incarceration) may be higher (Becker and Greer, 1960). By contrast, in environments with a more racially heterogeneous staff, and in environments which had lower levels of legal cynicism, inmates involved in more conventional behaviors prior to incarceration committed fewer nonviolent infractions. If racial heterogeneity of the staff is also capturing environments with more inmates from urban areas, an inmate's commitment to convention, as demonstrated by their involvement in conventional behaviors, may distinguish them from inmates who come from urban neighborhoods of disadvantage and subscribe to the street code that is prevalent in such areas (Anderson, 1999). Similarly, an inmate's commitment to convention may better insulate him or her in facility environments where the cultural belief of legal cynicism is more widespread among the inmate population. Inmates involved in more conventional behaviors prior to incarceration were also less likely to commit drug misconduct in harsher facility environments

(i.e., facilities with a higher proportion of maximum security inmates), also suggesting a possible insulating effect.

In facilities where the staff were more racially diverse, inmates with a greater involvement in facility work assignments had a lower odds of engaging in violent and nonviolent misconduct (excluding drug offenses). It could be that the effect of involvement in work assignments is more relevant in facility environments with a less diverse staff. These environments could be less relaxed due to the possibility of heightened tension resulting from the cultural differences between the less diverse staff and the inmates, who in Ohio's facilities, are generally 50 percent non-White (more generally, see Jacobs and Kraft, 1978). A greater involvement in work assignments may help to insulate inmates from environments that are more tense. In facilities containing a higher proportion of maximum security inmates (i.e., a more dangerous environment), inmates with a greater involvement in facility work assignment were also less likely to commit violent misconduct, suggesting a possible insulating effect. These speculations, alongside the consistent null effects of hours at a facility work assignment generated in the random coefficients models, suggest that further research into the importance of work assignments in models of misconduct is needed.

In environments with higher proportions of maximum security inmates, the effect of visitation on the prevalence of violent and drug offenses became weaker. This finding might be explained by the restricted opportunities for visitation that occurs in facilities which hold higher security inmates. In fact, the two facilities which hold the majority of the maximum security male inmates in Ohio are located near state borders. As such, the distance family members must travel acts as a barrier to visitation. Similarly, inmates with higher security designations are generally afforded fewer privileges such as frequent visitation, and so the main effect of

visitation may have been driven by the greater variation in visitation in lower security facilities, permitting the correlation observed in the random coefficients model.

All told, the estimation of cross-level interaction effects reinforced observations that individuals will react differently in different institutional environments (see, e.g., Adams, 1992; Wright and Goodstein, 1989). Unfortunately, the limited degrees of freedom at level-2 prohibited the disentangling of some of processes that possibly contributed to the few curious findings discussed above. Future studies may want to explore some of the speculations offered here. Nonetheless, the consistency in some of the other findings, along with the relative stability of the level-2 main effects, provide further evidence that both inmate and facility-level factors are relevant to an explanation of prison disorder (see also Camp et al., 2003; Huebner, 2003; Jiang and Winfree, 2006; Steiner and Wooldredge, 2008a; Wooldredge et al., 2001). Regarding the inmate-level effects, both pre-incarceration characteristics and aspects of inmates' incarceration experiences were determined to be relevant to understanding all four types of misconduct examined here. Facility-level factors also influenced the level of each type of misconduct. Consistent with other multi-level studies, this also study revealed that misconduct is an outcome with significant variation at both the inmate- and facility-levels of analysis. The components of variance from the unconditional models revealed that a substantive percentage of the variation in each of the four outcomes examined here existed between facilities. Accordingly, studies that do not consider the potential influence of both inmate and facility effects are missing a significant portion of the variation in misconduct to be explained.

The broader implications of the explainable variation in misconduct at the inmate- and facility-level could be that single level theories, such as those discussed earlier (e.g., importation), would be unable to account for the level of misconduct across both inmates and

facilities. Single level theories would also be unable to include the range of predictors (inmate and facility) that have been determined to be relevant to an explanation of prison disorder. The findings from this study, when considered with those from other recent multi-level studies (e.g., Camp et al., 2003; Huebner, 2003; Steiner and Wooldredge, 2008; Wooldredge et al., 2001), suggest that a theoretical framework is needed that includes inmate, environmental, and management characteristics in order to provide a more complete understanding of the sources of prison disorder so as to guide administrators in developing more effective methods for order maintenance (see also Byrne et al., 2008).

The findings from this study of inmate misconduct within and across Ohio facilities also have implications for studying prison disorder. If misconduct is an indicator of prison disorder, as argued in chapters 1 and 2, then theories of disorder also need to be able to account for differences in the level of orderliness across inmates and variations in the level of order between facilities. The findings here also suggest that the problem of order (measured here as the level of inmate misconduct) is complex, and as such, requires a comprehensive solution. In other words, the question of why some prisons are more orderly than others cannot be reduced to simple explanations such as variations in prison environments, differences between the inmates within facilities, or distinctions in how prisons are managed. In the following chapter, I describe a theoretical strategy which could provide a unified framework for studying inmate, environmental, and management effects on disorder at both the inmate- and facility-level.

Chapter 7

CONCLUSIONS: RETHINKING THEORIES OF PRISON DISORDER

There are several main conclusions that can be drawn from this study of inmates and facilities in the state of Ohio. First, the results of this study confirmed findings from other multi-level studies revealing significant variation in different types of misconduct across inmates within facilities as well as between facilities (see, e.g., Camp et al., 2003; Gillespie, 2005; Huebner, 2003; Jiang, 2005; Jiang and Winfree, 2006; Lahm, 2008; Steiner and Wooldredge, 2008a; Wooldredge et al., 2001; Wooldredge and Steiner, 2009). These findings suggest that studies which do not examine misconduct at both the inmate- and facility-level are potentially missing a significant portion of the variation in misconduct to explain. A few studies have also revealed variation in some types of misconduct between states (e.g., Steiner, 2009; Wooldredge and Steiner, 2009), and so models of misconduct derived from data collected from multiple jurisdictions may also need to consider the potential relevance of between-state differences that could influence this outcome (e.g., budgetary resources, sentencing policies).

This study also reinforced observations derived from extant studies of inmate misconduct by revealing that explanatory variables depicting characteristics of inmates, facility environments, and management practices are all relevant to an explanation of misconduct. More studies conducted at both the inmate- and facility-level that incorporate variables from these three predictor domains are needed in order to determine the strongest influences on misconduct. Only after a reliable number of studies have been carried out can prison administrators begin to use this information to develop methods for addressing the problem in their own facilities.

Related to the idea of including both inmate- and facility-level predictors in models of misconduct, the findings from this study also revealed that many of the inmate-level effects on misconduct varied across facilities. That is, these relationships became stronger in some facility environments versus others. Some of the inmate-level relationships that varied across facilities were influenced by managerial characteristics and/or environmental features measured at the facility-level. These findings support researchers' contention that characteristics of the inmates may interact with characteristics of the facility environments in which they are confined (e.g., Adams, 1992; Wright and Goodstein, 1989). Additional studies are needed that explore the relevance of inmate characteristics in some prison environments versus others. Findings from such studies could be helpful in aiding prison officials in making institutional placement decisions by providing information on person-environment fit.

More specific to the issue of management practices, this study revealed consistent effects for the perceived legitimacy of the correctional staff on the different types of misconduct examined here. When considered alongside Vuolo and Kruttschnitt's (2008) findings, and Sparks et al.'s (1996) qualitative observations, these findings demand the inclusion of inmates' perceptions of the correctional staff in future studies of the subject. From a more practical standpoint, these findings suggest that consistency and fairness in the handling of instances of misconduct may go along way towards achieving inmate compliance with the rules, which could make for more orderly facilities. If future studies continue to observe similar effects, correctional administrators may want to consider developing training curriculums that can aid in putting these ideas into practice.

Relatively consistent effects were also observed for inmates' legal cynicism, the macro-level counterpart to perceived legitimacy of the correctional staff. Facilities with higher levels of legal

cynicism had higher levels of misconduct (excluding violent offenses). These findings lend support to speculations by Byrne et al. (2008) regarding the potential relevance of institutional culture. As discussed in the last chapter, future studies may want to explore the sources of legal cynicism, not to mention the potential relevance of other measures of institutional culture. It could be, for example, that inmates tolerance of deviance is also related to the level of misconduct across prisons (more generally, see Sampson and Bean, 2006; Silver and Miller, 2004).

Many of the other findings from this study of Ohio inmates and facilities reinforced observations from previous studies of inmate misconduct. At the inmate-level, relationships were observed between misconduct and inmates' age, sex, race, as well as their involvement in conventional behaviors prior to incarceration. Facility-level effects were observed the proportion of maximum security inmates and the racial composition of the staff. The few findings which did differ from those derived from some of the existing studies may be due to the different time periods attached to the outcomes examined in this study versus many of the previous studies (past six months as opposed to since admission). Researchers conducting similar studies in the future may want to examine this possibility more directly.

As discussed in the previous chapter, the findings from this study of inmate misconduct also have implications for studying prison disorder because misconduct can be considered an indicator of prison disorder (as argued in chapters 1 and 2). I suggested that studying an outcome such as misconduct permits examination of differences between individuals in both their likelihoods and rates of committing misconduct as well as differences between facilities in their levels of misconduct. Differences in other indicators of disorder may also exist between individuals and facilities (e.g., self harm, victimization). In this study, however, I concentrated

on misconduct because there is a tendency in the penological literature to focus on misconduct as an indicator of disorder, and an indicator of adjustment or maladaptation. During the fieldwork for this study, we also were reminded of the central importance prison administrators place on minimizing misconduct in effort to maintain “good” facility order. If misconduct is a reflection of disorder, an adequate theory of prison disorder must be able to explain the differences in misconduct between inmates, facilities, and perhaps even states. Drawing from the discussion above, a comprehensive theory of prison disorder should also be inclusive of concepts reflecting characteristics of inmates, facility environments, and management practices.

Researchers of prison disorder or inmate deviance have generally relied on three theoretical perspectives when framing potential predictors. To briefly reiterate the earlier discussion, deprivation theory suggests that inmate behaviors are manifestations of how inmates adapt and cope with the “pains” inflicted by the prison environment, whether through participation in a social system that helps to reduce these deprivations (Clemmer, 1940; Sykes, 1958), or via individual level choices that help to facilitate need satisfaction (Goodstein et al., 1984; Goodstein and Wright, 1989). Importation theory holds that prisons are not completely closed systems and that inmate behaviors are shaped primarily by individuals’ pre-institution characteristics, attitudes, and experiences (Irwin and Cressey, 1962; Irwin, 1980). Management perspectives (e.g., administrative control, inmate balance) de-emphasize variations across facility environments and inmates, suggesting that inmate behaviors are primarily the result of differences in management practices (Camp et al., 2003; Colvin, 1992; DiIulio, 1987; Useem and Kimball, 1989; Useem and Reisig, 1998).

These three dominant theoretical perspectives have yielded valuable insights into the sources of inmates’ behavior. They have provided the theoretical foundations that influenced researchers

to offer empirical evidence regarding the relevance of characteristics of inmates, facility environments, and management practices. Yet scholars have recognized their limitations as stand alone explanations of inmate behavior (e.g., Byrne et al., 2008; Cao et al., 1997; Gillespie, 2005; Hochstetler and DeLisi, 2005; Jiang and Fisher-Giorlando, 2002; Kalinich et al., 1988; Lahm, 2008; Sparks et al., 1996; Thomas, 1970; Thomas, 1977). To be sure, none of these existing perspectives satisfy the requirements of a comprehensive theory of prison disorder that are mandated by the evidence provided by this study and others before it.

Deprivation theory, for example, neglects to consider differences in the characteristics of individuals which have been determined to be relevant to an explanation of misconduct, particularly those individual characteristics that were present prior to incarceration. Importation theory's sole emphasis on inmates' pre-institutional characteristics does not permit an explanation of differences in the level of misconduct between facilities, nor does the perspective allow for consideration of how environmental characteristics of facilities or variations in how facilities are managed may influence disorder. Furthermore, neither deprivation theory or importation theory permits consideration of how the relevance of inmate characteristics (e.g., importation concepts) might vary across prison environments or how the between-facility differences in inmate-level effects might be influenced by characteristics of facility environments (e.g., deprivation concepts) (Adams, 1992; Wright and Goodstein, 1989). For example, Wooldredge et al. (2001) found that the younger inmates were more likely to commit misconduct in facility environments that were more crowded. Wooldredge et al. (2001) speculated that the environmental characteristic crowding may have weakened sources of informal control over younger inmates.

Management perspectives do not incorporate concepts reflecting the differences between individuals or facility environments that the empirical evidence suggests are relevant to an explanation of prison disorder. Similar to deprivation and importation theories, management perspective do not consider whether between-facility differences in managerial practices interact with inmate-level effects (e.g., importation concepts). For example, this study revealed that the inverse relationship between age and misconduct varied across facility environments. Differences in the strength of that relationship across facilities were shaped by the proportion of maximum security inmates in facility environments, which could to some extent reflect the capabilities of management to restrict younger inmates' opportunities to engage in misconduct. Each of the existing theories of inmate behavior, therefore, while straightforward, logical, and to an extent empirically supported, is limited in that none of them can account for the variation in prison disorder at both the micro- and macro-level and incorporate the range of predictors and types of relationships which have been determined to be relevant to an explanation of disorder. Simply put, they are inadequate as explanations of prison disorder.

Recognizing the deficiencies in the existing theories of prison disorder, Bottoms (1999) offered a working theoretical model that does in principal satisfy the necessary criteria of a comprehensive theory of prison disorder. Bottoms's (1999) perspective recognizes that there are explainable differences in the level of disorder between inmates and facilities. Bottoms's (1999) model appropriately acknowledges the relevance of inmate characteristics and features of facility environments, although he suggests that their effects are mediated by staff deployment, approaches, and skills which are themselves mediated in by the legitimacy of correctional staff, In Bottoms's (1999) model staff deployment, approaches, and skills still maintains a direct effect on disorder, however.

Bottoms's (1999) model can be considered a management model in that he implies that other relevant influences on disorder can be countered by effective prison management. Bottoms's (1999) perspective differs from other management theories, though, in that his model relies on the normative solution to the problem of order. In the normative solution order is achieved by value consensus and by individuals' need to win approval by conforming to shared norms and beliefs, regardless of their self interests (Parsons, 1949; Kornhauser, 1978; Wrong, 1961). As discussed in greater detail in chapters 1 and 2, a normative perspective on compliance focuses on the influence of what people regard as just and moral as opposed to what is in their self-interest (Tyler, 1990). A normative perspective on prison discipline assumes that legitimacy is achieved by a consistent and fair application of the rules which, in turn, may influence inmate compliance (Bottoms, 1999; DiIulio, 1987; Hepburn, 1985; Irwin, 1980; Lombardo, 1989). By contrast, the exchange solution (inmate balance theory) suggests that functional interdependence creates mutually beneficial reciprocity relations that would be threatened by engaging in deviance (Ellis, 1971; Kornhauser, 1978; Wrong, 1961), while in the coercive solution (administrative control theory), conformity to the norms of a society is based on fear of a strong sanctioning system (Hirschi, 1969; Hobbes, [1651] 1962; Kornhauser, 1978).

Bottoms's (1999) model also differs from other management perspectives by incorporating a micro-level dimension of prison management, the legitimacy of the correctional staff. This study considered aspects of Bottoms's (1999) model and revealed ample support for the relevance of perceived legitimacy of the correctional staff. However, this study also revealed that characteristics of individuals and facility environments directly affect misconduct. Bottoms's (1999) model has therefore made an important contribution by incorporating a micro-level dimension within the prison management perspective, but the model, much like those discussed

above, fails to provide a comprehensive explanation of prison disorder. By placing an emphasis on the proximate effect of prison management, Bottoms's (1999) theory eventually succumbs to some of the same criticisms that can be applied to the more traditional theories of inmate behavior. As Carrabine (2005: 897) has convincingly argued, "the problem of order is multifaceted and any account that relies on a singular solution to the neglect of others is unlikely to grasp the variable ways in which economic interest, political force, and moral commitment might *combine* to sustain stable and orderly patterns of life (emphasis added)."

The inadequacies of the existing theoretical perspectives described above could be due in part to researchers' focus on prisons as "special environments" that require their own theory (see, e.g., Sparks et al., 1996). Perhaps McCleery (1961: 184) was correct when he observed that "there is little place for a special theory of penal administration as such, and a significant number of problems in prison administration grow from the failure to treat the prison as a social and political community." Although McCleery (1961) was referring to theories of prison management, his point could just as easily be applied to other theories of "inmate" behavior (e.g., importation, deprivation). Prisons are social institutions or communities (Clemmer, 1940; Steiner, 2009), prisons are societies (Sykes, 1958), and prisons are organizations (Colvin, 1992; Cressey, 1961; DiIulio, 1987). Although there are differences between prisons and what we normally conceive of when we think of other social collectives, there are also a striking number of similarities. It may be that a better understanding of prison (dis)order could be gained through consideration of more general explanations on crime and deviance (e.g., strain, control).

To illustrate this point, I outline a control model of prison disorder. The decision to adopt a control perspective stems from the idea that control in prison is necessarily linked to a common interest among inmates and staff to live or work in an orderly and safe environment (Bottoms,

1999; Sparks et al., 1996). This is not to say that staff and inmates necessarily work together to achieve order, but only that they share a common concern for order (Irwin and Cressey, 1962; Sparks et al., 1996). Thus, control can reflect formal practices used by correctional staff to maintain order, but it also reflects the ability of inmates to realize common goals.

A control perspective is consistent with the Hobbesian problem (described in chapters 1 and 2) because the question of why individuals obey the rules of a society is still the question that the theory seeks to answer (Hirschi, 1969). Control theories also incorporate the exchange, coercive, and normative solution to the problem of order (Kornhauser, 1978). The control perspective assumes a relatively constant innate motivation to deviate from rules across individuals. Variations in levels of deviance across individuals and areas are explained by the strength of controls (Hirschi, 1969; Janowitz, 1975; Kornhauser, 1978). Controls are actual or potential rewards and punishments that accrue from conformity to or deviation from the norms of society. Controls can be internal, invoked by the individual, or external, enforced by others. Controls can be direct or indirect. Direct controls are purposeful efforts to prevent or restrict deviance, whereas indirect controls are the result of role relationships established for other reasons and are the components of role exchanges (Kornhauser, 1978). A control perspective also recognizes the potential contributions of both individual- (inmate) and societal- (facility, state) level effects on deviance (Janowitz, 1975; Reiss, 1951; Sampson, 1986; Sampson and Laub, 1993; Wooldredge et al., 2001). For example, a control perspective permits consideration of related aspects such as ‘personal control’ (Reiss, 1951) and commitments to conformity (Briar and Pilavin, 1965; Hirschi, 1969; Toby, 1957; Wooldredge et al., 2001) at the individual-level, processes related to administrative (formal) or non-administrative (informal) controls at the aggregate-level (Colvin, 1992; DiIulio, 1987; Sampson, 1986; Useem and Kimball, 1989; Useem and Reisig, 1999), as

well as environmental conditions which influence control structures (Kornhauser, 1978; Sampson and Wilson, 1995; Useem, 1985, Wooldredge et al., 2001). As such, concepts that have previously been framed within existing perspectives of inmate deviance could also reflect sources of or barriers to control.

A Control Model of Prison Disorder

The paragraphs that follow are an illustration of how a more general theory of crime and deviance (control) could be applied to the prison context. The model described below was not tested in this study because such a test would require direct measures of the concepts discussed below. Although some of the findings from this study could be considered supportive of some of the predictions that are offered in the discussion below, the empirical validity of the model is purely speculative at this point and subject to empirical testing. Towards the goal of encouraging such research, I offer a control model of prison disorder.

The control model proposed here is a model of disorder, portrayed here as the level of inmate misconduct. Recall from chapters 1 and 2, that misconduct is an indicator of disorder that can be modeled at multiple levels of analysis. The proposed model recognizes the potential effects of inmate, facility, and state characteristics on disorder, and so the inclusion of multiple levels of explanatory variables necessarily requires that the outcome variable, “disorder”, be conceptualized as a prevalence (yes/no) or an incidence (count) measure of deviance at the individual-level, and a rate of deviance (prevalence = proportion, incidence = mean) at the aggregate-levels. In the paragraphs that follow, I will discuss the concepts in the model and then describe how some of the more commonly examined variables in studies of misconduct such as this one may tap into these concepts. Recall, however, that direct examination of the ideas

described below will require more direct measures than what has typically been empirically examined in past.

Individual Controls over Inmate Behavior

Personal control has been defined as the ability of an individual to refrain from satisfying his or her needs in ways which violate the norms and rules of a society (Janowitz, 1975; Reiss, 1951). This definition aligns closely with what psychologists refer to as behavioral control or individuals' internal locus control (e.g., Averill, 1973; Bandura, 1977; Goodstein et al., 1984), as well as what criminologists refer to as self control (e.g., Gottfredson and Hirschi, 1990). Personal control could be measured by individuals' attitudes about control in general. These attitudes are shaped by early childhood socialization in individuals' lives and therefore should be relatively stable by the time of imprisonment (Gottfredson and Hirschi, 1990; Sampson and Laub, 1993). Personal control could also be measured behaviorally. Inmates who have more personal control may be less likely to engage in deviance because they have stronger internal restraints governing their behavior (Reiss, 1951).

The rest of the inmate-level predictors in the proposed model can be located within the inmates' web of informal social controls. These situational conditions or other individual characteristics might counteract low personal or self control (Sampson and Laub, 1993). For example, those inmates with stronger ties to conventional society or greater stakes in conformity should be less likely to engage in deviant behavior. Social controls may also be found in the strength of inmates' social relationships or their connection to institutions of informal control (e.g., employment, family) (Wooldredge et al., 2001). Inmates with stronger connections to quality relationships or institutions of informal control should be less likely to engage in misconduct. Further, their beliefs regarding the moral validity of the facility in which they are

confined, its rules, and the legitimacy of the staff who enforce them may also be relevant under this perspective. That is, inmates who view the rules of a facility or its staff more favorably should engage in less deviance.

Direct measures of the concepts discussed above would require original data collection or data collected as a part of interviews required for some classification tools (e.g., the Level of Service Inventory-Revised developed by Andrews and Bonta, 1995). However, there has been a tendency in the extant research on inmate misconduct, adjustment, and so forth to rely on data retrieved from official records (see also Wooldredge, 1991). Indeed, the review of the research conducted between 1990 and 2007 included in this study revealed a number of secondary data analyses. Still, a number of the measures which are frequently examined in related studies could be treated as possible proxies or structural antecedents of the more direct measures of the individual-level concepts discussed above. With this caveat in mind, I will illustrate how some of the more frequently examined measures might tap into some of the inmate-level concepts of the control perspective.

As the first example, the inverse relationship between age and misconduct observed in this study and others could be relevant under the control perspective (Camp et al., 2003; Cunningham and Sorensen, 2006; Gaes and McGuire, 1985; Gaes et al., 2002; Goetting and Howsen, 1986; Kruttschnitt and Gartner, 2005; Lahm, 2008; MacKenzie, 1987; McCorkle, 1995; Sorensen et al., 1998; Steiner and Wooldredge, 2008a; Wooldredge, 1994; Wooldredge et al., 2001). Younger inmates often have fewer stakes in conformity (Jensen, 1977; Toby, 1957; Wooldredge et al., 2001). Younger individuals also generally have fewer “conventional” relationships (with, for example, partners and/or their own children) and are less likely to be involved in activities

reflecting more conformist lifestyles (such as full-time jobs) (Briar and Pilavin, 1965; Jensen, 1977).

This study revealed support for Bottoms's (1999) hypothesis that inmates are less likely to violate the rules of a correctional facility if they believe in the moral validity of its rules and the legitimacy of the correctional staff. This is not to say that most inmates do not believe that violating the rules is wrong. Instead, it suggests that the strength of such beliefs will vary between individuals and that strength is contingent on other beliefs, and on the strength of their other stakes in conformity (Hirschi, 1969). Other beliefs which could influence perceptions regarding the moral validity of the rules and the legitimacy of the correctional staff could be whether inmates view the rules or actions of the staff as "fair" or "just." Inmates' beliefs regarding facility rules and correctional staff are how the normative solution to the problem of order might be included in the control model. Inmates with more favorable beliefs regarding the facilities in which they are confined, the rules of those facilities, or the correctional staff should be less likely to engage in deviance.

Studies such as this have revealed mixed findings for the effect of inmates' race or ethnicity on misconduct, although more consistent effects have been found for the effect of race on violent misconduct (see, e.g., Camp et al., 2003; Gaes et al., 2002; Griffin and Hepburn, 2006; Harer and Steffensmeier, 1996; Huebner, 2003; Gillespie, 2005; Lahm, 2008; Sorensen et al., 1998; Steiner and Wooldredge, 2008; Wooldredge, 1994; Wright, 1989). If an inmate's race or ethnicity is relevant to an explanation of inmate behavior, it could be linked to rule breaking by way of cultural adaptation perspectives on crime and deviance. These perspectives, which are consistent with a control perspective (see, e.g., Warner, 2003), posit that residents of neighborhoods characterized by concentrated poverty and social isolation may adapt to their circumstances by developing

values counter to those of the larger society (see Sampson and Bean, 2006; Sampson and Wilson, 1995; Warner, 2003). Although residents of disadvantaged neighborhoods may share mainstream cultural values, these values can become attenuated within certain structural contexts (Sampson and Bean, 2006; Warner, 2003). The conditions in extremely disadvantaged neighborhoods are such that crime (including violence) is tolerated and expected as a part of daily life (Anderson, 1999; Krivo and Peterson, 1996; Wilson, 1987; Sampson and Wilson, 1995). Feelings of resentment and hostility towards legal authority are also pervasive among residents (Anderson, 1999; Hagan and Albonetti, 1982; Harer and Steffensmeier, 1996; Sampson and Bartusch, 1998). Due to the overrepresentation of nonwhites in these economically and socially disadvantaged neighborhoods, African Americans may be more likely to adopt values related to an “underclass” culture (Sampson and Wilson, 1995; Sampson and Bean, 2006; Wilson, 1987). Emerging evidence suggests this perspective may also be applicable to other ethnic minority groups (see Sampson and Bartusch, 1998; Sampson and Bean, 2006). If minority inmates are drawn disproportionately from these types of neighborhoods (Rose and Clear, 1998), then these inmates may not hold much respect for the rules of a correctional facility because they question the legitimacy of those rules (Harer and Steffensmeier, 1996; Wooldredge et al., 2001). It follows that rule breaking may be more common among African American or other ethnic minority inmates because they may bring their ecologically structured beliefs regarding legal authority, crime, and deviance into the prison environment (Harer and Steffensmeier, 1996; Irwin and Cressey, 1962; Irwin, 1980). Although these structurally induced beliefs become latent when individuals are removed from disadvantaged neighborhoods (e.g., incarcerated), they may become relevant if they are pertinent to solving problems posed by an individual’s new environment (Becker and Geer, 1960).

To be sure, this position does not suggest that White inmates who originate from disadvantaged neighborhoods necessarily hold conventional beliefs regarding legal authority and deviance (see also Sampson and Bartusch, 1996; Sampson and Bean, 2006). Based on previous research, however, minority inmates are more likely to be drawn from the neighborhoods where such beliefs become attenuated due to 1) the overrepresentation of minorities in racially/ethnically heterogeneous disadvantaged neighborhoods; and 2) the greater number of the racially/ethnically homogenous disadvantaged neighborhoods that are “minority” neighborhoods (Krivo and Peterson, 1996; Rose and Clear, 1998; Sampson and Wilson, 1995; Sampson and Bean, 2006). Therefore, within racial/ethnic groups, a greater proportion of African American and Hispanic inmates (as opposed to White inmates) might hold particular beliefs regarding legal authority and crime that make them more likely to engage in misconduct.

There could be several reasons why the effects of an inmate’s race may be more consistent in studies of assaults or violent misconduct as opposed to other types of rule infractions. First, ethnographic studies of disadvantaged neighborhoods have documented how these areas are often characterized by cultural values which condone and legitimize violence as a mechanism for attaining status or respect (see, e.g., Anderson, 1999). Studies of the prison environment have also underscored the role of violence in status attainment (e.g., Jacobs, 1977; Sykes, 1958; Wacquant, 2001). Second, both disadvantaged neighborhoods and prisons cultivate expectations about aggression at the hands of others (Bernard, 1990; Wacquant, 2001). These expectations generate a fear for self which in turn may evoke protective and potentially violent responses (Anderson, 1999; Bernard, 1990; Harer and Steffensmeier, 1996). Third, drug dealing and other nonviolent crimes such as property crimes might be less prevalent among disadvantaged groups in prison relative to residents of low status neighborhoods because of fewer opportunities for

such crimes inside prison (i.e., more limited availability of drugs as well as fewer personal possessions).

Measures of conventional behaviors or social achievement may also be relevant under a control perspective, and the mixed findings across studies such as this might be do in part to these measures acting only as proxies for concepts such as commitment to convention. Marital or family status, for example, only proxy the notions of stronger attachments to conventional others and a greater investment in conformity. More specifically, for adults, children and spouses create interdependent systems of obligation and restraint that impose costs for deviance (Sampson and Laub, 1993), and inmates who commit misconduct may have their visitation restricted or could be transferred to a facility where opportunities for visitation are less frequent (the “costs” to inmates with spouses and children of engaging in misconduct).

Involvement in conventional activities such as education or a job may also proxy a greater commitment to traditional goals or a greater stake in conformity (Hirschi, 1969; Toby, 1957). Employment and higher levels of education also could, in and of themselves, constitute informal controls over an individual, as he or she might have more to lose by engaging in deviance (Sampson and Laub, 1993; Wooldredge et al., 2001). It follows that inmates with higher levels of education or those who were employed prior to their incarceration may be less likely to commit rule infractions because these inmates have demonstrated some level of conformity (to conventional activities) and, therefore, might be more likely to abide by facility rules.

Even though this study did not reveal an effect for involvement in facility programming, other studies have (e.g., Steiner and Wooldredge, 2008a). Participation in facility programming (education, vocational training) or securing a facility work assignment may be relevant because involvement in such activities might reflect to some extent an inmate’s commitment to

conventional activities or, from a more cynical perspective, a tolerance for conventional activities. Even assuming that many inmates participate in programs merely to pass the time or to appease staff, a greater involvement in such activities may help to reduce opportunities for misconduct. Similarly, an assignment to such activities by correctional staff also offers more formal control over inmates. These types of formal controls are remunerative, as opposed to coercive, in that they could function as an incentive to comply with facility rules (Colvin, 1992; Huebner, 2003). Accordingly, inmates with facility work assignments or those who are involved in treatment programs could be less likely to engage in deviant behaviors (see also French and Gendreau, 2006).

Although not completely supported by the findings from this study, it could be important to consider various aspects of inmates' criminal histories, such as their committing offenses, prior criminal histories, or other indicators of prior antisocial behaviors (e.g., pre-arrest drug use) as pre-institutional indicators of the severity and duration of criminality. The relevance of continuity in individual behavior is well documented (see, e.g., Sampson and Laub, 1993). Inmates who have engaged in more serious offenses or have lengthier criminal histories could also be more likely to engage in misconduct because their beliefs regarding the legitimacy of legal authority may be weaker (Alpert and Hicks, 1977; Wooldredge et al., 2001).

Informal Controls at the Facility- and State-Levels

Community-level control theories predict that there are structural factors which impede residents' abilities to realize common values (Bursik and Grasmick, 1993). Similarly, there may be related factors which affect control structures in prisons. Population turnover, for example, may affect the level of disorder by creating instability in the social system of a prison. Similar to what has been observed in community studies regarding the effect of residential stability (e.g.,

Bursik and Grasmick, 1993; Kasarda and Janowitz, 1974; Kornhauser, 1978; Sampson and Groves, 1989; Sampson et al., 1997), population turnover may undermine the staff and inmates' relational networks. Regarding inmates, population instability may inhibit the forming of social ties or networks and lessen the level of involvement in conventional pursuits (e.g., education). In facilities with high turnover, prison staff may not be as capable of gathering the necessary information about inmates in order to effectively structure their routines. A high level of turnover could also impede communications between inmates and staff which might contribute to disorganization (Colvin, 1992; Useem, 1985). Thus, institutions with higher levels of population instability (excluding those specifically designed to handle it such as reception centers) may have higher levels of misconduct.

Findings from several studies suggest that crowding is positively related to levels of misconduct (Clayton and Carr, 1984; Ekland-Olson, 1986; Nacci, Teitelbaum, and Prather, 1977; Ruback and Carr, 1993; Wooldredge et al., 2001), while some researchers have found a negative relationship (Gaes and McGuire, 1985; Walters, 1998). Still, other studies have not observed a relationship between crowding and misconduct (Camp et al., 2003; McCorkle et al., 1995; Useem and Reisig, 1999). The relevance of crowding, however, may be indirect through other more proximate influences (e.g., level of supervision) on misconduct (Steiner and Wooldredge, 2008b). Crowding may also condition inmate-level relationships (see, e.g., Gillespie, 2005; Wooldredge et al., 2001; Wooldredge and Steiner, 2009). If crowding is relevant to an explanation of prison disorder, it could be linked to disorder in prison through its impact on patterns of communication between inmates and staff. Deterioration in communication may contribute to disorganization which could cause a "breakdown" in control (Useem, 1985), possibly increasing the odds of conflict and violence. Crowding might also enhance

opportunities for deviance by inhibiting staff surveillance (i.e., formal control), and it may impact daily routines by limiting inmates' access to resources that help to structure their activities and reduce exposure to situations more likely to promote deviance (i.e., informal control).

Ethnographic studies of prison environments have documented how demographic changes to the racial composition of inmate populations coincided with increased violence and deviance within prisons in the 1960s and 1970s (e.g., Carroll, 1974; Irwin, 1980; Jacobs, 1977). These scholars' observations are consistent with ideas stemming from macro-level theories of social control, such as the idea that increasing racial heterogeneity of community populations may weaken informal controls. More specifically, while ethnically diverse groups might share common values (e.g., a desire for order), increasing heterogeneity can obstruct patterns of interaction and communication that bind social organizations together (Bursik and Grasmick, 1993; Kornhauser, 1978; Sampson and Groves, 1989).

The processes that contributed to elevated levels of violence in the 1960s, 70s, and early 80s have since subsided, however, which brings into question the current applicability of a link between the racial composition of inmate populations and levels of inmate misconduct. The proportions of African American and Hispanic inmates reached a plateau in the early 1990s (Blumstein and Beck, 1999; Harrison and Beck, 2006), and this stabilization just happened to coincide with longer sentences of incarceration resulting from legislative changes owing to the "get tough" movement (Austin and Irwin, 2001; Blumstein and Beck, 1999; Irwin, 2005). Relatedly, many states now integrate their housing units and some have even integrated their cells (Henderson, Cullen, Carroll, and Feinberg, 2000; Trulson, Marquart, Hemmens, and Carroll, 2008). Since the racial composition of prisons has stabilized and integration is now

forced in many prisons, inmates may have adapted to racial heterogeneity with a common focus on facility order. Drawing from the “equal status contact” hypothesis, this thesis suggests that conflict may be reduced by equal status contact between majority and minority groups in pursuit of common goals (Allport, 1954). Prisons are societies where residents generally have equal status and share a common goal (i.e., to do their time in a safe and orderly environment) (Bottoms, 1999; Irwin and Cressey, 1962; Sparks et al., 1996; Trulson and Marquart, 2002). By reducing the structural inequality experienced by minority residents within the larger population (equal status), the cultural role of social isolation and corresponding adaptation should be reduced (Sampson and Bean, 2006).

Related to the equal status contact perspective, surveys of prison administrators have revealed support for the racial integration of prison inmates (Henderson, Cullen, Carroll, and Feinberg, 2000; Riveland, 1999). Henderson et al. (2000) also found that prison officials did not report an increase in violence or conflict after integration. Similarly, the interviews with prison wardens conducted during this study revealed the common perception that achieving racial balance (integration) in housing units and work assignments contributes to good facility order. In a study devoted to this issue, Trulson and Marquart (2002) found that desegregation of Texas prisons via integrated cell assignment did not result in more violence when compared to violence among segregated inmates. Trulson and Marquart (2002) also observed a decrease in the level of racially motivated assaults among integrated cell partners. Preliminary analysis of the data analyzed in this study, however, did not reveal a relationship between the racial and ethnic heterogeneity of the inmates and the level of any type of misconduct examined here. Then again, the practice of integrating Ohio facilities (and the housing units within them) may have restricted the variation in the racial and ethnic composition of the inmate populations across facilities,

perhaps prohibiting a correlation with the level of misconduct. It could be that the racial and ethnic composition of the inmate population is only relevant in multi-state studies or in single state studies where integration is left to the discretion of facility administrators.

The equal status contact perspective also posits that the effect of contact is greatly enhanced by institutional supports, one of which might involve local atmosphere (Allport, 1954). Greater racial and ethnic heterogeneity among correctional staff might offer a more normalized prison experience for inmates (Camp et al., 2003), and so a potentially relevant measure of a supportive facility culture is the racial and ethnic composition of correctional staff. More normalized prison environments may facilitate the perception of common interests between members of different race and ethnic groups, thus constituting a mechanism of informal control over inmates. Scholars have also discussed how minority officers may be more efficacious in working with the inmate population (Britton, 1997; Jacobs and Kraft, 1978). On the other hand, disparity between the racial and ethnic composition of staff and inmates may fuel inmates' perceptions of injustice (e.g., Jacobs, 1977; Jacobs and Kraft, 1978). In support of these ideas, the findings from this study revealed that a more racially (and ethnically) integrated correctional staff was generally associated with a lower level of misconduct (see also McCorkle et al., 1995).

In community-level control models, deviance has been hypothesized to be affected by the level of social ties, organizational participation, supervised peer groups, and collective efficacy (Kubin and Weitzer, 2003; Sampson, Morenoff, and Gannon-Rowley, 2002), although several of these concepts (e.g., social ties) have been determined to be less relevant in more recent studies (Kubrin and Weitzer, 2003). Fewer of these factors are likely to be relevant in prisons such as collective efficacy. Social ties, however, could be relevant to levels of prison disorder. Social ties are the system of friendship and relational networks of an area (Sampson and Groves, 1989;

Silver and Miller, 2004). If inmates form social ties, their capacity for social control may be increased because they would be familiar with one another and be more likely to engage in guardianship behaviors against victimization. Familiarity might also ease adaptation, as inmates may be more likely to find their niche in the social system within their facility (Toch, 1977). On the other hand, social ties might impede efforts to establish social control because in some prisons such relational links may form the basis for rule violating groups (e.g., gangs). Thus, the link between the level of social ties and deviance in prisons may require more specific measures than have been applied in community studies. For example, Useem and Reisig (1998) observed a positive relationship between the level of inmates in prohibited groups and some indicators of disorder.

The equivalent to organizational participation in the community could be inmates' involvement in facility programs and work assignments. A greater involvement in formal and voluntary programming may also provide the opportunity for pro-social interaction between inmates and between inmates and staff facilitating the ability to solve common problems (more generally, see Sampson and Groves, 1989). In other words, a higher degree of involvement in institutional programs may reflect a higher degree of normative commitment among the inmate population (Bottoms, 1999). The success of prison organizations, however, might depend on a high rate of inmate involvement. Prisons with a higher level of involvement in institutional programming (e.g., treatment programs, work assignments) should have lower levels of disorder.

Institutional cultural may also be relevant under this perspective. In prisons, however, both the inmate and the staff culture may be relevant to an explanation of disorder (Byrne et al., 2008). Regarding prison staff, the development of attitudes and beliefs that are counter to the organizational goals may adversely affect staff-staff and staff-inmate relations (Poole and Regoli,

1980). As discussed in the previous chapter, staff beliefs regarding their bases of power (e.g., coercive) might also be relevant to the level of inmate deviance (Bottoms, 1999; Hepburn, 1985). How staff view their bases of power could be applicable because their bases of power are a resource which is used to gain inmate compliance (Hepburn, 1985). Staff attitudes and beliefs may also be influenced by factors such as the organizational structure of the prison, managerial philosophy of the warden, environmental stressors, the *esprit de corps* of the staff, and the their level of satisfaction with their job.

As discussed in chapter 6, the cultural values of the correctional staff may shape the inmate culture (Byrne et al., 2008), but inmate culture can also be influenced by the environmental conditions of the facility (Clemmer, 1940; Sykes, 1958). If the inmates perceive that they are powerless to influence the control structure of a prison or that their conditions of confinement are unjust, they may become more cynical regarding the rules of a correctional facility and those who enforce them (more generally, see Sampson and Bartusch, 1998). Lower levels of satisfaction with facility rules and the staff who enforce them may influence inmates' perceptions of institutional legitimacy or legal cynicism. If a greater number of inmates perceive the mechanisms of formal control as illegitimate, they may be less likely to intervene for the benefit of the common good (Silver and Miller, 2004). In partial support of these ideas, the analyses in this study revealed relatively consistent effects for inmates' legal cynicism on levels of misconduct.

Assuming a multi-jurisdiction study, state-level factors can contribute to levels of disorder. For example, fiscal stress can affect the level of misconduct by undermining the balance between the prison administration's resources and its responsibilities, not to mention contributing to poor conditions of confinement (Colvin, 1992; Goldstone and Useem, 1999; Steiner, 2009). The

potential relevance of fiscal stress is consistent with macro-social theories of social control, which hypothesize an inverse relationship between neighborhood- or community-level economic disadvantage (i.e., socioeconomic status) and levels of crime (see, e.g., Shaw and McKay, 1942; Sampson and Groves, 1989; Sampson, Raudenbush, and Earls, 1997). With regard to prisons, however, economic disadvantage operates at the state-level since prison resources are distributed by the state department of corrections in which they are contained. Other state-level external pressures which could be potentially relevant include changes in laws or sentencing practices, or other factors which increase the number or type of inmates coming into a state's facilities such as younger inmates, more drug offenders, more mentally ill offenders, and so forth (Mathieson, 1966; Steiner, 2009; Useem and Goldstone, 2002).

Formal Controls over Inmates Behavior at the Facility-Level

Extant studies such as this one have revealed that more secure facilities are associated with higher levels of (official indicators of) disorder (see also, e.g., Camp et al., 2003; Huey and McNulty, 2005; Huebner, 2003; Jiang and Winfree, 2006; McCorkle et al., 1995; Steiner, 2009; Steiner and Wooldredge, 2008a), and so a facility's security-level could be relevant under a control perspective. Differences in facility security-level typically coincide with differences in physical environments that may either promote or inhibit opportunities for rule violations. For example, the environment of a maximum-security prison is often more sterile and authoritative compared to less secure facilities. Although maximum security facilities typically contain more guards, they also contain more dangerous and higher risk inmates. For all of these reasons, higher security facilities or facilities with higher proportions of inmates classified as higher security might experience more disorder.

Also potentially relevant are differences in the architectural design of facilities (Bottoms, 1999). Irwin (2005) observed that the architectural design of newer facilities and the use of special maximum-security facilities for containing disruptive inmates, have contributed to lower levels of violence across most general confinement prisons. Security and efficiency have guided the planning and design of most facilities constructed after 1980, and newer prisons have enhanced staff members' abilities to monitor and control the inmate population, thereby reducing opportunities for deviance (Irwin, 2005).

Researchers have found effects for the use of both remunerative and coercive controls (e.g., Huebner, 2003; McCorkle et al., 1995; Ruback and Carr, 1993; Steiner, 2009; Steiner and Wooldredge, 2008a; Useem and Reisig, 1998), although similar findings were not observed in this study. Coercive controls are those in which force is the primary means of application (Colvin, 1992; Etzioni, 1961). Prisons are coercive in nature, in so much that they have been labeled coercive organizations (Etzioni, 1961). Most facilities, however, have a continuum of controls and rewards that they employ, and the coercive measures typically fall towards the end of that continuum (Colvin, 1992; Sparks et al., 1996). Aggregate-level measures of coercive controls could include factors such as the ratio of staff to inmates, disciplinary housing use, or administrative transfers. By contrast, remunerative controls involve the manipulation of material rewards or incentives (Bottoms, 1999; Colvin, 1992; Etzioni, 1961) and they are the exchange solution to the problem of order. At the facility level, remunerative controls can include the use of facility programming, work assignments, furloughs, visitation, and so forth. A greater use of remunerative controls should be linked to lower levels of misconduct if such controls function as an incentive for inmates to comply with facility rules (Colvin, 1992). As Bottoms (1999) has argued, such incentives are more effective when they are linked in some way to the inmates'

normative commitments (e.g., a desire to change or to pass time). Since this is unlikely to be true for all inmates, however, remunerative controls may also function to restrict opportunities for deviance.

Testing the Control Model of Prison Disorder

In the preceding discussion, I outlined a control model which may be able to account for differences in misconduct/disorder at both the inmate- and facility-level. The model includes concepts reflecting differences between inmates, facility environments, and managerial styles, all of which have been determined to be relevant to an explanation of prison disorder. While a strength of the model is its inclusiveness, it is also a limitation because a test of the entire proposed model would require a considerable amount of data from a number of facilities nested within multiple states. Partial tests of the model, however, could still shed light on its applicability. After a number of such examinations have been carried out, a more complete picture of why some prisons are more orderly than others may emerge. Correctional administrators can then begin to use this information to derive more practical methods for maintaining orderly and safe institutions. The high priority placed on facility order underscores the relevance of examining these influences on inmate misconduct in order to improve conditions of confinement for inmates and working conditions for staff.

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Appendix 1: Ohio Inmate Rules of Conduct

Ohio Administrative Code

Chapter 5120-9-06 Inmate Rules of Conduct

- (A) The disciplinary violations defined by this rule shall address acts that constitute an immediate and direct threat to the security or orderly operation of the institution, or to the safety of its staff, visitors and inmates, (including the inmate who has violated the rule,) as well as other violations of institutional or departmental rules and regulations.
- (B) Dispositions for rule violations are defined in rules 5120-9-07 and 5120-9-08 of the Administrative Code.
- (C) Rule violations: Assault and related acts, rules 1 through 7; threats, rules 8 through 10; sexual misconduct, rules 11 through 14; riot, disturbances and unauthorized group activity, rules 15 through 19; resistance to authority, rules 20 through 23; unauthorized relationships and disrespect, rules 24 through 26; lying and falsification, 27 and 28; escape and related conduct, rules 29 through 35; weapons, rules 36 through 38; drugs and other related matters, rules 39 through 43; gambling, dealing and other related offenses, rules 44 through 47; property and contraband, rules 48 through 51; fire violations, rules 52 through 53; telephone, mail and visiting, rules 54 through 56; tattooing and self-mutilation, rules 57 through 58; general provisions, rules 59 through 61 as follows:
- (1) Causing, or attempting to cause, the death of another.
 - (2) Hostage taking, including any physical restraint of another.
 - (3) Causing, or attempting to cause, serious physical harm to another.
 - (4) Causing, or attempting to cause, physical harm to another.
 - (5) Causing, or attempting to cause, physical harm to another with a weapon.
 - (6) Throwing, expelling, or otherwise causing a bodily substance to come into contact with another.
 - (7) Throwing any other liquid or material on or at another.
 - (8) Threatening bodily harm to another (with or without a weapon.)
 - (9) Threatening harm to the property of another, including state property.

Appendix 1: Ohio Inmate Rules of Conduct (continued)

- (10) Extortion by threat of violence or other means
- (11) Non-consensual sexual conduct with another, whether compelled:
 - (a) By force,
 - (b) By threat of force,
 - (c) By intimidation other than threat of force, or,
 - (d) By any other circumstances evidencing a lack of consent by the victim.
- (12) Non-consensual sexual contact with another, whether compelled:
 - (a) By force.
 - (b) By threat of force,
 - (c) By intimidation other than threat of force, or,
 - (d) By any other circumstances evidencing a lack of consent by the victim.
- (13) Consensual physical contact for the purpose of sexually arousing or gratifying either person.
- (14) Seductive or obscene acts, including indecent exposure or masturbation; including, but not limited, to any word, action, gesture or other behavior that is sexual in nature and would be offensive to a reasonable person.
- (15) Rioting or encouraging others to riot.
- (16) Engaging in or encouraging a group demonstration or work stoppage.
- (17) Engaging in unauthorized group activities as set forth in paragraph (B) of rule 5120-9-37 of the Administrative Code.
- (18) Encouraging or creating a disturbance.
- (19) Fighting - with or without weapons, including instigation of, or perpetuating fighting.
- (20) Physical resistance to a direct order.

Appendix 1: Ohio Inmate Rules of Conduct (continued)

- (21) Disobedience of a direct order.
- (22) Refusal to carry out work or other institutional assignments.
- (23) Refusal to accept an assignment or classification action.
- (24) Establishing or attempting to establish a personal relationship with an employee, without authorization from the managing officer, including but not limited to:
 - (a) Sending personal mail to an employee at his or her residence or another address not associated with the department of rehabilitation and correction,
 - (b) Making a telephone call to or receiving a telephone call from an employee at his or her residence or other location not associated with the department of rehabilitation and correction,
 - (c) Giving to, or receiving from an employee, any item, favor, or service,
 - (d) Engaging in any form of business with an employee; including buying, selling, or trading any item or service,
 - (e) Engaging in, or soliciting, sexual conduct, sexual contact or any act of a sexual nature with an employee.
 - (f) For purposes of this rule "employee" includes any employee of the department and any contractor, employee of a contractor, or volunteer.
- (25) Intentionally grabbing, or touching a staff member or other person without the consent of such person in a way likely to harass, annoy or impede the movement of such person.
- (26) Disrespect to an officer, staff member, visitor or other inmate.
- (27) Giving false information or lying to departmental employees.
- (28) Forging, possessing, or presenting forged or counterfeit documents.
- (29) Escape from institution or outside custody (e.g. transport vehicle, department transport officer, other court officer or law enforcement officer, outside work crew, etc.) As used in this rule, escape means that the inmate has exited a building in which he was confined; crossed a secure institutional perimeter; or walked away from or broken away from custody while outside the facility.

Appendix 1: Ohio Inmate Rules of Conduct (continued)

- (30) Removing or escaping from physical restraints (handcuffs, leg irons, etc.) or any confined area within an institution (cell, recreation area, strip cell, vehicle, etc.)
- (31) Attempting or planning an escape.
- (32) Tampering with locks, or locking devices, window bars; tampering with walls floors or ceilings in an effort to penetrate them.
- (33) Possession of escape materials; including keys or lock picking devices (may include maps, tools, ropes, material for concealing identity or making dummies, etc.)
- (34) Forging, possessing, or obtaining forged, or falsified documents which purport to effect release or reduction in sentence.
- (35) Being out of place.
- (36) Possession or manufacture of a weapon, ammunition, explosive or incendiary device.
- (37) Procuring, or attempting to procure, a weapon, ammunition, explosive or incendiary device; aiding, soliciting or collaborating with another person to procure a weapon, ammunition, explosive or incendiary device or to introduce or convey a weapon, ammunition, explosive or incendiary device into a correctional facility.
- (38) Possession of plans, instructions, or formula for making weapons or any explosive or incendiary device.
- (39) Unauthorized possession, manufacture, or consumption of drugs or any intoxicating substance.
- (40) Procuring or attempting to procure, unauthorized drugs; aiding, soliciting, or collaborating with another to procure unauthorized drugs or to introduce unauthorized drugs into a correctional facility.
- (41) Unauthorized possession of drug paraphernalia.
- (42) Misuse of authorized medication.
- (43) Refusal to submit urine sample, or otherwise to cooperate with drug testing, or mandatory substance abuse sanctions.

Appendix 1: Ohio Inmate Rules of Conduct (continued)

- (44) Gambling or possession of gambling paraphernalia.
- (45) Dealing, conducting, facilitating, or participating in any transaction, occurring in whole or in part, within an institution, or involving an inmate, staff member or another for which payment of any kind is made, promised, or expected.
- (46) Conducting business operations with any person or entity outside the institution, whether or not for profit, without specific permission in writing from the warden.
- (47) Possession or use of money in the institution.
- (48) Stealing or embezzlement of property, obtaining property by fraud or receiving stolen, embezzled, or fraudulently obtained property.
- (49) Destruction, alteration, or misuse of property.
- (50) Possession of property of another.
- (51) Possession of contraband, including any article knowingly possessed which has been altered or for which permission has not been given.
- (52) Setting a fire; any unauthorized burning.
- (53) Tampering with fire alarms, sprinklers, or other fire suppression equipment.
- (54) Unauthorized use of telephone or violation of mail and visiting rules.
- (55) Use of telephone or mail to threaten, harass, intimidate, or annoy another.
- (56) Use of telephone or mail in furtherance of any criminal activity.
- (57) Self-mutilation, including tattooing.
- (58) Possession of devices or material used for tattooing.
- (59) Any act not otherwise set forth herein, knowingly done which constitutes a threat to the security of the institution, its staff, other inmates, or to the acting inmate.
- (60) Attempting to commit; aiding another in the commission of; soliciting another to commit; or entering into an agreement with another to commit any of the above acts.

Appendix 1: Ohio Inmate Rules of Conduct (continued)

(61) Any violation of any published institutional rules, regulations or procedures.

(D) No inmate shall be found guilty of a violation of a rule of conduct without some evidence of the commission of an act and the intent to commit the act.

(1) The act must be beyond mere preparation and be sufficiently performed to constitute a substantial risk of its being performed.

(2) "Intent" may be express, or inferred from the facts and circumstances of the case.

(E) Definitions: The following definitions shall be used in the application of these rules.

(1) "Physical harm to persons" means any injury, illness or other physiological impairment, regardless of its gravity or duration.

(2) "Serious physical harm to persons" means any of the following:

(a) Any mental illness or condition of such gravity as would normally require hospitalization or prolonged psychiatric treatment;

(b) Any physical harm that carries a substantial risk of death;

(c) Any physical harm that involves some permanent incapacity, whether partial or total, or that involves some temporary, substantial incapacity;

(d) Any physical harm that involves some permanent disfigurement or that involves some temporary, serious disfigurement;

(e) Any physical harm that involves acute pain of such duration as to result in substantial suffering or that involves any degree of prolonged or intractable pain.

(3) "Sexual conduct" means vaginal intercourse between a male and female; anal intercourse, fellatio, and cunnilingus between persons regardless of sex; and, without privilege to do so, the insertion, however slight, of any part of the body or any instrument, apparatus, or other object into the vaginal or anal cavity of another. Penetration, however slight, is sufficient to complete vaginal or anal intercourse.

(4) "Sexual contact" means any touching of an erogenous zone of another, including without limitation the thigh, genitals, buttock, pubic region, or, if the person is a female, a breast, for the purpose of sexually arousing or gratifying either person.

Appendix 1: Ohio Inmate Rules of Conduct (continued)

- (5) "Possession" means either actual or constructive possession and may be inferred from any facts or circumstances that indicate possession, control or ownership of the item, or of the container or area in which the item was found.
- (6) "Unauthorized drugs," for the purposes of this rule, refers to any drug not authorized by institutional or departmental policy including any controlled substance, any prescription drug possessed without a valid prescription, or any medications held in excess of possession limits.
- (7) "Extortion," as used in these rules, means acting with purpose to obtain any thing of benefit or value, or to compel, coerce, or induce another to violate a rule or commit any unlawful act.

Replaces: 5120-9-06
Effective: 07/19/2004

R.C. 119.032 review dates: 01/12/2009

Certification

Date

Rexinald R. Wilkinson

Promulgated Under: 111.15

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5120-9-06 7

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Individual-Level				
Kruttschnitt and Krmpotich (1990)	53 inmates housed in the MN Correctional Facility for Women	The type of behavior inmate reported they were most often written up for, or disciplined for (1 = never been written up to 3 = aggressive acts)	White (-), inmate raised by both parents	violent conviction offense, age, drug use, time served, time served on prior convictions, perceived racial conflict
Ivanoff (1992)	123 male inmates housed in a classification facility in NY	Whether inmate reported a parasuicide in prison	psychiatric history, homelessness, prior suicide attempt, social desirability (-)	drug abuse, alcohol abuse, arrest record, drug abuse, alcohol abuse (-)
Van Voorhis (1993)	179 male inmates admitted to the FPC-Terre Haute (IN) between 9/86 and 7/88	Number of official infractions per month in the 6 months following admission	time served for previous incarcerations	committed criminal type, neurotic anxious type, character disorder, situational type, age, non-White, revoked
		Number of aggressive behaviors inmate reported (scale of summed responses 1 = never to 4 = many) at follow up period (3-36 months)	situational type	committed criminal type, neurotic anxious type, character disorder, age, non-White, time served for previous incarcerations, revoked
		Number of victimizations inmate reported (scale of summed responses 1 = never to 4 = many) at follow up period (3-36 months)	non-White, revoked	committed criminal type, neurotic anxious type, character disorder, situational type, age
		Number of nonviolent infractions inmate reported (scale of summed responses 1 = never to 4 = many) at follow up period (3-36 months)	non-White	committed criminal type, neurotic anxious type, character disorder, situational type, age, time served for previous incarcerations, revoked
Proctor (1994)	458 male inmates admitted to 4 facilities in NE during 1990	Number of official disciplinary reports in 6 months following admission	incarceration length, type of prior commitments, age (-), education level (-)	current offense type, past criminal acts involving violence, number of prior escapes, White, marital status, religious faith, pre-arrest drug use

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Individual-Level (continued)				
Van Voorhis (1994)	179 male inmates admitted to the FPC-Terre Haute (IN) between 9/86 and 7/88	Number of official citations for aggressive behaviors per month in the 6 months following admission		aggressive type, neurotic type, situational type, previously revoked/escaped, time served for previous incarcerations, age, non-White
		Aggression (whether inmate reported they would fight if necessary) at follow up period (3-36 months)		aggressive type, neurotic type, situational type, previously revoked/escaped, time served for previous incarcerations, age, non-White
		Mean of staff reports of inmates' aggressiveness (1= very passive and meek to 5 = extremely hostile and aggressive) at 4, 5, and 6 months following admission	aggressive type	neurotic type, situational type, previously revoked/escaped, time served for previous incarcerations, age, non-White
		Number of official citations for insubordination per month in the 6 months following admission	situational type, age, non-White	aggressive type, neurotic type, previously revoked/escaped, time served for previous incarcerations
		Insubordination (whether inmate reported they believe in doing their own time) at follow up period (3-36 months)	situational type	aggressive type, neurotic type, previously revoked/escaped, time served for previous incarcerations, age, non-White
		Staff reports of whether the inmate follows the rules	age (-)	aggressive type, neurotic type, situational type, previously revoked/escaped, time served for previous incarcerations, non-White
		Number of official citations for drugs or alcohol per month in the 6 months following admission	prior time served for previous incarcerations	aggressive type, neurotic type, situational type, previously revoked/escaped, age, non-white

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Individual-Level (continued)				
		Drug/alcohol use (whether inmate reported they would use drugs/alcohol as a means of dealing with prison difficulties)	neurotic type	aggressive type, situational type, previously revoked/escaped, prior time served for previous incarcerations, age, non-white
Wooldredge (1994)	231 inmates housed in a medium security facility in a Southwestern state	Whether inmate reported they had committed a personal crime (robbery, aggravate injury, aggravated assault, assault with weapon) in the past 3 months	age (-), Mexican American, married and living together (-), sentence \leq 5 years (-), hours per week in education (-), visited monthly (-)	offense history, proportion of sentence served, hours per week at job, hours per week in recreation, hours per week watching TV, number of friends in facility, attitude toward facility
		Whether inmate reported they had committed a property crime (burglary, stolen property, damage to property) in the past 3 months	offense history, hours per week watching TV, visited monthly (-)	age, Mexican American, married and living together, sentence \leq 5 years, proportion of sentence served, hours per week in education, hours per week at job, hours per week in recreation, number of friends in facility, attitude toward facility
		Whether inmate reported they had been a victim of a personal crime (robbery, aggravate injury, aggravated assault, assault with weapon) in the past 3 months	age (-), Mexican American, offense history, hours per week in recreation (-), hours per week watching TV, number of friends in facility (-), visited monthly (-), attitude toward facility	married and living together, proportion of sentence served, sentence \leq 5 years, hours per week in education, hours per week at job
		Whether inmate reported they had been a victim of property crime (burglary, stolen property, damage to property) in the past 3 months	Mexican American, married and living together, proportion of sentence served	age, offense history, sentence \leq 5 years, hours per week in education, hours per week at job, hours per week in recreation, hours per week watching TV, number of friends in facility, visited monthly, attitude toward facility

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Individual-Level (continued)				
Finn (1995)	2,496 male inmates released from the NY prison system between 7/82 and 9/83	Number of official disciplinary incidents for violent acts per year	employed (-), married (-), education level (-)	violent crime (-), prior arrest for a violent crime, prior imprisonment, urban background, African American
		Number of official disciplinary incidents for nonviolent acts per year	employed (-), married (-), education level (-), violent crime (-), prior arrest for a violent crime, urban background, African American x employment (-), African American x prior incarceration (-)	prior imprisonment, African American
Sorensen et al. (1998)	336 inmates incarcerated for murder in the MO Department of Corrections between 1978 and 1987	Number of official rule violations	death sentence, African American, age (-), age x African American, admitted between 1984 and 1987	life without parole sentence, admitted between 1981 and 1983
		Number of official rule violations for assault	African American, age (-), age x African American	death sentence, life without parole sentence, admitted between 1981 and 1983, admitted between 1984 and 1987
Pass (1999)	345 male inmates housed in the Eastern Correctional Facility (NY)	Whether inmate reported they had not received a disciplinary infraction in the past 3 months	Muslim, Protestant, African American, age 26-35 (-), age 36-45 (-), age > 46 (-), college oriented (-)	religious orientation, considered religion important, joined religious group for special privileges, joined religious group for protection, no religion, other religion, Hispanic, White, no prior incarcerations
Harer and Langan (2001)	24,765 female and 177,767 male inmates sentenced to the FBOP by the USSC between 1991 and 1998	Number of official misconducts for violent acts per month during the first year of confinement	type of detainer, severity of current offense, history of escapes, history of violence, precommitment status, age at admission (reverse coded), criminal history category, education	male

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Individual-Level (continued)				
		Number of official misconducts for less serious violent acts per month during the first year of confinement	type of detainer, severity of current offense, history of escapes, history of violence, precommitment status, age at admission (reverse coded), criminal history category, admission, male	
		Number of official misconducts for serious violent acts per month during the first year of confinement	type of detainer, severity of current offense, history of escapes, history of violence, precommitment status, age at admission (reverse coded), criminal history category, education, male	
	24,765 female inmates sentenced to the FBOP by the USSC between 1991 and 1998	Number of official misconducts for violent acts per month during the first year of confinement	type of detainer, severity of current offense, history of violence, precommitment status, age at admission (reverse coded), criminal history category, education	history of escapes
	177,767 male inmates sentenced to the FBOP by the USSC between 1991 and 1998	Number of official misconducts for violent acts per month during the first year of confinement	type of detainer, severity of current offense, history of escapes, history of violence, precommitment status, age at admission (reverse coded), criminal history category, education	
Hensley et al. (2001)	245 inmates housed in a Southern correctional facility for women	Whether inmate reported they had masturbated since incarceration	homosexual behavior since incarceration	age, White, protestant, education, time served, security level, nonpersonal crime
		Whether inmate reported they masturbated more than once a month since incarceration	White, security level, homosexual behavior since incarceration	age, protestant, education, time served, nonpersonal crime
Reidy et al. (2001)	38 IN inmates whose sentence to death was modified	Whether an inmate received an official infraction for violent act	age (-), African American	

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Individual-Level (continued)				
Sorensen and Pilgrim (2000)	6,390 inmates incarcerated for murder and admitted to the TX Department of Criminal Justice between 1/90 and 12/98.	Whether an inmate received an official infraction for violent act	involvement in contemporaneous robbery/burglary, multiple victims, additional attempted murder/assault, gang membership, prior prison term, age < 21, age 26-30 (-), age > 35 (-), years at risk	
Clear and Sumter (2002)	769 male inmates housed in 20 prisons across 12 states	Number of times inmate reported they were written up for 11 types of infractions	religiousness (-), prior incarcerations, person offense, age (-), theft	
Hochstetler and DeLisi (2005)	208 males paroled from a work release facility in a Midwestern state	Offending scale of responses (0 = never to 4 = \geq 2-3 times a week) to 3 questions (frequency of physical fights with other prisoners, how often the inmate retaliated against a prisoner, and how often the inmate carried/kept nearby something that they intended to use as a weapon)	participation in inmate economy, witness victimization, self control (-), criminal attitudes (-), perceived conditions (note: total effects from SEM reported)	
Lee and Edens (2005)	777 male inmates housed in 30 facilities in Korea	Whether an inmate received an official misconduct during their incarceration	incarceration term passed, 3-4 years of incarceration passed, > 4 years of incarceration passed, criminal record, management problems during time in detention center, delusional thoughts, officer rating of risk	< 1 year of incarceration passed, 1-2 years of incarceration passed, 2-3 years of incarceration passed
Thompson and Loper (2005)	692 inmates housed in a maximum security facility for females in VA	Mean number of official infractions per month since incarceration	sentence length, age (-)	time served
		Mean number of official nonviolent infractions per month since incarceration	sentence length, age (-)	time served
		Mean number of official violent infractions per month since incarceration	age (-)	sentence length, time served

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Individual-Level (continued)				
Berg and DeLisi (2006)	831 male inmates housed in a Southwestern state department of corrections	Number of official infractions for violent acts	Hispanic, Native American, residency, violence history, time served, education	African American, citizenship, age, substance abuse, offense severity, confinement history, security threat group, street gang, vocation history
	174 female inmates housed in a Southwestern state department of corrections	Number of official infractions for violent acts	African American, Native American, offense severity, confinement history, time served, education, security threat group	Hispanic, citizenship, age, substance abuse, violence history, street gang, vocation history
Berk et al. (2006)	9,662 male inmates admitted to the CA Department of Corrections between 11/98 and 4/99	Whether inmate received an official serious misconduct within 24 months after intake	sentence length, age at first arrest, gang activity, age at intake	prior CYA commitment, diagnosed with mental illness, prior CDC incarceration, ≥ 31 days in jail or youth facility, good behavior during prior CDC incarceration, bad behavior during prior CDC incarceration
Cunningham and Sorensen (2006)	9,044 close custody inmates sentenced to ≥ 10 years and admitted to the FL Department of Corrections between 1/98 and 12/02	Whether inmate received an official infraction for violent act since their incarceration	age (-), gang member, number of prior prison commitments, homicide (-), sexual assault (-), sentence 10-14 years, sentence ≥ 30 years (-)	sentence 15-19 years, sentence LWOP
Cunningham and Sorensen (2007)	24,517 close custody male inmates who served all of 2003 in the FL Department of Corrections	Whether inmate received an official rule violation during 2003	age < 21, age 21-25, age 26-30, age 36-40 (-), age > 40 (-), gang member, prior imprisonment, violent crime (-), sentence < 5 years, sentence 6-10 years, sentence 11-20 years, prior dangerous rule violation	time served
		Whether inmate received an official rule violation for a potentially violent act during 2003	age < 21, age 21-25, age 26-30, age 36-40 (-), age > 40 (-), gang member, prior imprisonment, violent crime (-), sentence < 5 years, sentence 6-10 years, sentence 11-20 years, prior dangerous rule violation	time served

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Individual-Level (continued)				
		Whether inmate received an official violation for assault during 2003	age < 21, age 21-25, age > 40 (-), prior imprisonment, sentence < 5 years, sentence 6-10 years, sentence 11-20 years, prior dangerous rule violation	age 26-30, age 36-40, gang member, violent crime, time served
		Whether inmate received an official violation for assault with injury during 2003	age < 21, age 21-25, age 26-30, prior imprisonment, violent crime (-), sentence < 5 years, sentence 11-20 years, prior dangerous rule violation	age 36-40, age > 40, gang member, sentence 6-10 years, time served
		Whether inmate received an official violation for assault with serious injury during 2003	age < 21, prior imprisonment, violent crime (-), prior dangerous rule violation	age 21-25, age 26-30, age 36-40, age > 40, gang member, sentence < 5 years, sentence 6-10 years, sentence 11-20 years, time served
Komarovskaya et al. (2007)	590 inmates housed in a maximum security facility for females in VA	Whether inmate reported committing a violent act (PVI) since incarceration	age (-), minority status, impulsivity	
		Whether inmate received an official infraction for a violent act since incarceration	minority status, impulsivity	age
		Whether inmate received an official infraction for a nonviolent act since incarceration	age (-), minority status	impulsivity
		Whether inmate received an official infraction for institution-only misconduct since incarceration	age (-), impulsivity	minority status
Sorensen and Cunningham (2007)	1,440 inmates convicted of murder who entered the TX Department of Criminal Justice between 2/01 and 11/03	Whether inmate received an official rule infraction for a potentially violent act	age < 21, age 21-25, age > 40 (-), prior prison commitment, time served	African American, Hispanic, age 26-30, age 36-40, lesser homicide, capital murder
		Whether inmate received an official rule infraction for assault	age < 21, age > 40 (-), prior prison commitment, capital murder, time served	African American, Hispanic, age 21-25, age 26-30, age 36-40, lesser homicide

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Individual-Level (continued)				
		Whether inmate received an official rule infraction for assault resulting in injury	age 21-25, prior prison commitment, capital murder, time served	African American, Hispanic, age < 21, age 26-30, age 36-40, age > 40, lesser homicide
Wolff et al. (2007)	6,964 inmates housed in 12 facilities for males	Whether inmate reported being a victim of nonconsensual sexual victimization (forced sex acts) by staff in the past 6 months	age (-), White, sexual victim prior to age 18	Latino, prior treatment for schizophrenia or bipolar disorder, prior treatment for other mental health problems, time at facility, time in prison since 18, committed violent crime, had young victim, age at first arrest, thought gang activity is high, education
		Whether inmate reported being a victim of abusive sexual victimization (intentional touching of specified areas of the body) by another inmate in the past 6 months	White, prior treatment for schizophrenia or bipolar disorder, prior treatment for other mental health problems, sexual victim prior to age 18, thought gang activity high, education	age, Latino, time at facility, time in prison since 18, committed violent crime, had young victim, age at first arrest
		Whether inmate reported being a victim of any sexual victimization by another inmate in the past 6 months	prior treatment for other mental health problems, sexual victim prior to age 18, thought gang activity high, education	age, White, Latino, prior treatment for schizophrenia or bipolar disorder, time at facility, time in prison since 18, committed violent crime, had young victim, age at first arrest
	257 inmates housed in a sex offender treatment facility for men	Whether inmate reported being a victim of abusive sexual victimization (intentional touching of specified areas of the body) by another inmate in the past 6 months	age (-), thought gang activity high	White, Latino, prior treatment for schizophrenia or bipolar disorder, prior treatment for other mental health problems, time at facility, time in prison since 18, committed violent crime, had young victim, age at first arrest, sexual victim prior to age 18, education

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Individual-Level (continued)				
		Whether inmate reported being a victim of any sexual victimization by another inmate in the past 6 months	age (-), prior treatment for other mental health problems, thought gang activity high	White, Latino, prior treatment for schizophrenia or bipolar disorder, time at facility, time in prison since 18, committed violent crime, had young victim, age at first arrest, sexual victim prior to age 18, education
		Whether inmate reported being a victim of any sexual victimization by another inmate or staff in the past 6 months	age (-), prior treatment for other mental health problems, thought gang activity high	White, Latino, prior treatment for schizophrenia or bipolar disorder, time at facility, time in prison since 18, committed violent crime, had young victim, age at first arrest, sexual victim prior to age 18, education
	564 inmates housed in a facility for females	Whether inmate reported being a victim of nonconsensual sexual victimization (forced sex acts) by another inmate in the past 6 months		age, White, Latino, prior treatment for schizophrenia or bipolar disorder, prior treatment for other mental health problems, time at facility, time in prison since 18, committed violent crime, age at first arrest, sexual victim prior to age 18, thought gang activity high, education
		Whether inmate reported being a victim of nonconsensual sexual victimization (forced sex acts) by staff in the past 6 months		age, White, Latino, prior treatment for schizophrenia or bipolar disorder, prior treatment for other mental health problems, time at facility, time in prison since 18, committed violent crime, age at first arrest, sexual victim prior to age 18, thought gang activity high, education

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Individual-Level (continued)				
		Whether inmate reported being a victim of abusive sexual victimization (intentional touching of specified areas of the body) by another inmate in the past 6 months	sexual victim prior to age 18, thought gang activity high	age, White, Latino, prior treatment for schizophrenia or bipolar disorder, prior treatment for other mental health problems, time at facility, time in prison since 18, committed violent crime, age at first arrest, education
		Whether inmate reported being a victim of abusive sexual victimization (intentional touching of specified areas of the body) by staff in the past 6 months	age (-)	White, Latino, prior treatment for schizophrenia or bipolar disorder, prior treatment for other mental health problems, time at facility, time in prison since 18, committed violent crime, age at first arrest, sexual victim prior to age 18, thought gang activity high, education
		Whether inmate reported being a victim of any sexual victimization by another inmate in the past 6 months	sexual victim prior to age 18, thought gang activity high	age, White, Latino, prior treatment for schizophrenia or bipolar disorder, prior treatment for other mental health problems, time at facility, time in prison since 18, committed violent crime, age at first arrest, education
		Whether inmate reported being a victim of any sexual victimization by staff in the past 6 months	education	age, White, Latino, prior treatment for schizophrenia or bipolar disorder, prior treatment for other mental health problems, time at facility, time in prison since 18, committed violent crime, age at first arrest, sexual victim prior to age 18, thought gang activity high

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Individual-Level (continued)				
		Whether inmate reported being a victim of any sexual victimization by another inmate or staff in the past 6 months	sexual victim prior to age 18, thought gang activity high	age, White, Latino, prior treatment for schizophrenia or bipolar disorder, prior treatment for other mental health problems, time at facility, time in prison since 18, committed violent crime, age at first arrest, education
Aggregate-Level				
Ruback and Carr (1993)	25 state facilities in GA between 1/80 and 8/89	number of officially recorded nonviolent infractions per month	facility housed \leq 25, cost per inmate, density, custody level (-), date when facility was built (-), facility population	mean age, budget, jail backlog, number of non-White prisoners, number of probationers, number of violent offenders, number of staff, capacity, rate of change in density, dummy measures for facilities
		number of officially recorded violent infractions per month	facility housed \leq 25, cost per inmate, density, custody level (-), date when facility was built (-), facility population	mean age, budget, jail backlog, number of non-White prisoners, number of probationers, number of violent offenders, number of employees, capacity, rate of change in density, dummy variables for facilities
McCorkle et al. (1995)	371 general confinement state facilities for males that were open in 1984 and 1990 (subsamples of the 1984 and 1990 Census of State and Federal Adult Correctional Facilities)	Number of officially recorded assaults on inmates per 100 inmates	White-African American guard ratio, program involvement (-), state unemployment rate (-), security level	current crowding, crowding change, court order, court order change, increased security, inmate-guard ratio, guard turnover, institution size, state White-African American income ratio
		Number of officially recorded assaults on staff per 100 inmates	White-African American guard ratio, program involvement (-), security level	current crowding, crowding change, court order, court order change, increased security, inmate-guard ratio, guard turnover, institution size, state unemployment rate, state White-African American income ratio

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Aggregate-Level (continued)				
		Staff reports of whether the institution experienced a riot (an incident involving 5 or more inmates which resulted in serious injury or property damage)		current crowding, crowding change, court order, court order change, increased security, inmate-guard ratio, guard turnover, White-African American guard ratio, program involvement (-), institution size, state unemployment rate, state White-African American income ratio, security level, inmate assaults, staff assaults
Reisig (1998)	11 higher custody state prisons	Less serious disorder (factor of aggregated staff reports of the noise level in the cell block, number of incidents for destruction of property, minor inmate assault, violence without injury, inmate disobedience, serious inmate assault, inmate on staff violence)	responsibility model of management (-)	consensual model of management, control model of management
		Serious disorder (factor of aggregated staff reports of the number of escapes, inmate homicides, and forcible rapes)	control model of management	responsibility model of management, consensual model of management

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Aggregate-Level (continued)				
Useem and Reisig (1999)	285 higher security (medium, maximum, close) facilities across the U.S.	Staff reports of whether the facility experienced a riot between 1/84 and 9/86 (action that included ≥ 10 inmates that prevented authorities from controlling, keeping order in, or traveling freely through some are of the facility, included threats of or acts that resulted in the injury to prison personnel or inmates and damage to prison property, and was not brought under control within 5 minutes)	inmate population, staff esprit de corps	security level, crowding, authorized inmate organization, policy crackdown, % disciplinary tickets upheld by administration, paid inmate employment, % inmate in prohibited groups
	277 higher security (medium, maximum, close) facilities across the U.S.	Staff reports of whether the facility experienced an inmate disturbance between 1/84 and 9/86 (action that included ≥ 10 inmates, included threats of or acts that resulted in the injury to prison personnel or inmates and damage to prison property, and was brought under control within 5 minutes)	inmate population, security level (-), percent disciplinary tickets upheld by administration (-), paid inmate employment (-), proportion inmate in prohibited groups	crowding, authorized inmate organization, policy crackdown, staff esprit de corps

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Aggregate-Level (continued)				
	281 higher security (medium, maximum, close) facilities across the U.S.	Staff reports of whether the facility experienced a nonviolent protest between 1/85 and 9/86 (action that included ≥ 10 inmates, included inmates who openly disobeyed some rule or order of the administration and who did not use or threaten violence)	inmate population, crowding (-), paid inmate employment	security level (-), authorized inmate organization, policy crackdown, % disciplinary tickets upheld by administration (-), staff esprit de corps, % inmate in prohibited groups
	285 higher security (medium, maximum, close) facilities across the U.S.	Scale of staff reports of increased severity of an unlawful protest (0 = no protest to 3 = riot occurrence)	inmate population, % disciplinary tickets upheld by administration (-)	security level, crowding, authorized inmate organization, policy crackdown, staff esprit de corps, paid inmate employment, % inmate in prohibited groups
Reisig (2002)	298 higher custody (med., max, or close) state facilities across the U.S. operating at full capacity for ≥ 1 year	Staff reported number of inmate-on-inmate homicides during 1985	% inmates in prohibited groups, % disciplinary tickets upheld by administration	officer turnover, (natural log of population, mean % ≤ 25 years old, mean % African American, mean % violent offenders, cell crowding, mean % of inmates housed in maximum/close security, and ratio medical staff to inmates included, coefficients not reported)
Walters (2002)	Entire FBOP system between 2/86 and 1/95	Number of officially recorded assaults per 1000 inmates for each month	proportion of inmates 18-25, population density (-)	ratio African American inmates to White inmates, proportion staff < 1 year experience (-), ratio inmates to staff, season
Huey and McNulty (2005)	1,118 correctional facilities included in the 1990 and 1995 Census of State and Federal Correctional Facilities	Staff reports of whether an institution had a suicide (1995 Census)	psychiatric facility, facility age, female facility (-), coed facility (-), single occupancy, multiple occupancy, maximum security, overcrowding, overcrowding x maximum security (-), overcrowding x medium security (-)	suicide in 1990, located in Northern region, located in Southern region, located in Western region, federal facility, private facility, % participating in programming, medium security

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Multi-Level: Pooled Models				
Baskin et al. (1991)	3,332 inmates housed in the NY prison system	Staff reports of whether inmate harmed or attempted to harm themselves in 90 day period	depression	female, African American, Hispanic, married, age, violent offense, drug/alcohol offense, medium security facility, minimum security facility, confusion, psychotic symptomatology
		Staff reports of whether inmate fought with or assaulted another inmate in 90 day period	female (-), age (-), medium security facility (-), minimum security facility (-), confusion	African American, Hispanic, married, violent offense, drug/alcohol offense, depression, psychotic symptomatology
		Staff reports of whether inmate assaulted or attempted to assault staff in 90 day period	age (-), medium security facility (-), confusion	female, African American, Hispanic, married, violent offense, drug/alcohol offense, minimum security facility, depression, psychotic symptomatology
		Staff reports of whether inmate destroyed furniture or property or set a fire in 90 day period	married (-), confusion, depression	female, African American, Hispanic, age, violent offense, drug/alcohol offense, medium security facility, minimum security facility, psychotic symptomatology
Steinke (1991)	809 infractions that occurred between 6/87 and 5/88 in a CA institution for males exhibiting psychiatric or behavior problems while incarcerated	Whether the official infraction was for aggressive behavior towards staff	corridor/hall, shower/dining/recreation area, observation wing, disciplinary housing, other inmates involved (-)	job/school/appointment site, dorm, temperature hot, day shift, afternoon shift, reported by officer/same unit, reported by officer/another unit
		Whether the official infraction was for aggressive behavior towards inmates	job/school/appointment site, dorm, corridor/hall, shower/dining/recreation area, disciplinary housing, temperature hot	observation wing, day shift, afternoon shift, reported by officer/same unit, reported by officer/another unit

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Multi-Level: Pooled Models (continued)				
		Whether the official infraction was for aggressive behavior towards self	corridor/hall, disciplinary housing, day shift	dorm, observation wing, temperature hot, afternoon shift, reported by officer/same unit, reported by officer/another unit
		Whether the official infraction was for aggressive behavior towards property	corridor/hall, shower/dining/recreation area, observation wing, disciplinary housing, afternoon shift, reported by officer/same unit, reported by officer/another unit, other inmates involved (-)	dorm, temperature hot, day shift
Wright (1991)	339 inmates housed in 10 medium/maximum state facilities for males in NY	Number of official charges for altercations with inmates or staff or refusal to obey orders in the 3 years before the study	time served, aggregated environmental support, aggregated environmental activity, aggregated environmental safety	aggregated environmental structure
Simon (1993)	273 inmates incarcerated for violent crimes over a 2 year period in the AZ Department of Corrections	Natural log of the number of official major infractions inmate was written up for during their current admission	months in prison, IQ (-), juvenile convictions, adult convictions	age, White, urban, education, marital status, employment, substance abuse history, prior arrest, prior prison term, incarcerated for robbery, sentence, relationship (nonstranger) to victim, security level of yard, received visit
		Natural log of the number of official minor infractions inmate was written up for during their current admission	months in prison, age (-), prior prison term, medium security facility (-)	IQ, juvenile convictions, adult convictions, White, urban, education, marital status, employment, substance abuse history, prior arrest, incarcerated for robbery, sentence, relationship (nonstranger) to victim, received visit
		Natural log of the weighted (major infractions = 3) number of official infractions inmate was written up for during their current admission	months in prison, age (-), IQ (-), juvenile convictions, prior prison term, relationship (nonstranger) to victim (-)	White, urban, education, marital status, employment, substance abuse history, adult convictions, prior arrest, incarcerated for robbery, sentence, security level of yard, received visit

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Multi-Level: Pooled Models (continued)				
Wright (1993)	942 inmates housed in 10 medium/maximum state facilities for males in NY	Number of official charges for altercations with inmates or staff or refusal to obey orders in the 3 years before the study	aggregated environmental structure, aggregated environmental support, aggregated environmental freedom, aggregated environmental privacy	
		Number of officially recorded stress related sick calls in the 3 years before the study	aggregated environmental structure, aggregated environmental support	
McCorkle (1995)	4,519 White male inmates housed in state confinement facilities across the U.S. (sub-sample of the 1986 Survey of Inmates in State Correctional Facilities)	Number of official rule infractions inmate reported he was found guilty of per year since incarcerated	age (-), married (-), employed prior to prison (-), prior prison commitment (-), maximum security facility	history of prescribed medication or hospitalization for mental illness, currently on medication for mental illness, education, age at first arrest, age at first confinement, drug abuse month before arrest, current offense violent, medium security facility
	4,211 African American male inmates housed in state confinement facilities across the U.S. (sub-sample of the 1986 Survey of Inmates in State Correctional Facilities)	Number of official rule infractions inmate reported he was found guilty of per year since incarcerated	age (-), employed prior to prison (-), prior prison commitment (-), drug abuse month before arrest, maximum security facility	history of prescribed medication or hospitalization for mental illness, currently on medication for mental illness, married, education, age at first arrest, age at first confinement, current offense violent, medium security facility
	1,168 White female inmates housed in state confinement facilities across the U.S. (sub-sample of the 1986 Survey of Inmates in State Correctional Facilities)	Number of official rule infractions inmate reported he was found guilty of per year since incarcerated	currently on medication for mental illness, age (-), prior prison commitment (-), current offense violent, medium security facility (-), maximum security facility (-)	history of prescribed medication or hospitalization for mental illness, married, employed prior to prison, education, age at first arrest, age at first confinement, drug abuse month before arrest

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Multi-Level: Pooled Models (continued)				
	1,085 African American female inmates housed in state confinement facilities across the U.S. (sub-sample of the 1986 Survey of Inmates in State Correctional Facilities)	Number of official rule infractions inmate reported he was found guilty of per year since incarcerated	currently on medication for mental illness, age (-), education (-), current offense violent, medium security facility (-), maximum security facility (-)	history of prescribed medication or hospitalization for mental illness, married, employed prior to prison, age at 1 st arrest, prior prison commitment, age at 1 st confinement, drug abuse month before arrest
Craddock (1996)	3,551 male inmates admitted to NC Division of Prisons in 1980	Whether inmate received an official rule violation within 5 years or during their sentence if sentence < 5 years	age (-), prior prison sentence, prior training school admission (-), minimum sentence length, person offense, property offense (-), drug offense (-), medium custody (-), minimum custody (-), prior prison sentence x prior training school admission (-)	minority, probation/parole revocator, offense seriousness
	1,315 female inmates admitted to NC Division of Prisons between 1976-1980	Whether inmate received an official rule violation within 5 years or during their sentence if sentence < 5 years	age (-), prior prison sentence, probation/parole revocator, minimum sentence length, person offense (-), property offense (-), drug offense (-)	minority, prior training school admission, offense seriousness
Harer and Steffensmeier (1996)	24,692 African American or White male inmates who were incarcerated in the 58 FBOP facilities on 3/05/89 or who were found guilty of a violent rule infraction between 7/88 and 12/89	Whether inmate was found guilty of an official infraction for a violent act between 7/88 and 12/89	African American, age (-), security classification, determinant sentence, maximum sentence length (-), furlough (-), facility located in the South, level of effective staff-inmate communication (-), security 2, security 6, security 7	months served, turnover rate, % African American, % African American ² , population, ratio of staff to inmates, crowding, security 3, security 4, security 5, number of treatment staff, level of gang activity, % inmates Cuban, mean time served, inmate from ses deprived background

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Multi-Level: Pooled Models (continued)				
	25,272 African American or White male inmates who were incarcerated in the 58 FBOP facilities on 3/05/89 or who were found guilty of an alcohol/drug rule infraction between 7/01/88 and 12/31/89	Whether inmate was found guilty of an official infraction for a drug/alcohol offense between 7/88 and 12/89	African American (-), age (-), security classification, determinant sentence, months served, maximum sentence length (-), turnover rate (-), % African American (-), % African American ² , ratio of staff to inmates (-), level of effective staff-inmate communication (-), security 2, security 3, security 4, security 5, security 7, number of treatment staff (-), level of gang activity (-), % inmates Cuban (-), mean time served, inmate from ses deprived background (-)	furlough, facility located in the South, population, crowding, security 6
Cao et al. (1997)	883 inmates admitted to 12 state facilities in OH between 9/85 and 10/85 who served ≥ 1 year	Number of class II tickets received in 12 month period	age (-), age ² , education (-), male (-), nonwhite, juvenile incarceration	indeterminate sentence, facility security level, sentence length, pre-incarceration employment, married, mental illness, substance abuse, number of violent offenses, county of commitment size, prior incarceration
		Number of Class III tickets received in 12 month period	age, age ² , not married	indeterminate sentence, facility security level, sentence length, education (-), male (-), nonwhite, pre-incarceration employment, mental illness, substance abuse, number of violent offenses, county of commitment size, juvenile incarceration, prior incarceration
Fernandez and Neiman (1998)	13,161 inmates who received an incident report in the CA prison system between 1992 and 1994	Natural log of the weighted (seriousness) number of official infractions per year between 1992 and 1994	age (-), sentence length (-), not high school graduate, not employed, single, Chicano (-), maximum custody facility, medium custody facility (-), minimum custody facility (-)	time served, African American

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Multi-Level: Pooled Models (continued)				
		Natural log of the weighted (seriousness) number of official assault infractions per year between 1992 and 1994	age (-), sentence length (-), not high school graduate, not employed, Chicano (-), African American, maximum custody facility, medium custody facility (-), minimum custody facility (-)	time served, single
Wooldredge (1998)	581 inmates housed in 3 facilities for males	Whether an inmate reported he had been a victim of physical assault during the past 6 months (How many times have you been hit or kicked by another inmate for reasons other than because you tried to hurt him first)	age (-), annual gross income, number of education/study hours (-), recreation hours, social distance, visits per month	African American, education before incarceration, married with children, prior felony convictions, incarcerated for a personal crime, high-close linear design, high close podular design, job hours, vocation training hours, proportion of sentence served
		Whether an inmate reported he had been a victim of theft during the past 6 months (How many times has someone took something when you were not around and without your permission to do so)	education before incarceration, prior felony convictions, number of education/study hours, vocational training hours, recreation hours social distance	age, African American, married with children, annual gross income, incarcerated for a personal crime, high-close linear design, high close podular design, job hours, proportion of sentence served, visits per month
Lutze and Murphy (1999)	271 male inmates admitted to the Intensive Confinement Center (PA) between 12/93 and 10/94 who completed the program and 106 male inmates from the FPC-Allenwood (PA)	Number of times inmate reported involvement in conflict with staff (Guttman scale of 7 items measuring the level of conflict, verbal to physical)	gendered environment, Federal Prison Camp, age (-), sentence length	

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Multi-Level: Pooled Models (continued)				
		Number of times inmate reported involvement in conflict with other inmates (Guttman scale of 7 items measuring the level of conflict, verbal to physical)	gendered environment	Federal Prison Camp, age (-), sentence length
Gaes et al. (2002)	82,504 males housed in FBOP facilities on 3/1/97	Number of official infractions for violent acts between 3/97 and 2/98	security custody score, number of prior infractions, Columbian citizenship (-), Mexican citizenship, other citizenship, Hispanic, age (-), African American, Native American, Florence/Marion (-), facility administrative security level, facility high security level, facility medium security level, time in gang (-), Aryan Brotherhood, Black Guerilla Family, Mexican Mafia, Texas Syndicate, organized crime, Dirty White Boys, Mexakanemi, Netas, White supremacy groups, Bloods, Crips, Black Gangster Disciples, Border Brothers, Latin Kings, Vice Lords, drug cartel (no other), prison gangs (modern), Jamaican Posse, New York street gangs, miscellaneous city, multiple gangs (none monitored), multiple gangs (monitored), risk days	citizenship missing, time served, Asian, facility low security level, multiple gang affiliation, Southeast Asian organized crime, drug cartel (other), antigovernment, motorcycle, DC Crews

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Multi-Level: Pooled Models (continued)				
		Number of official infractions for serious violent acts between 3/97 and 2/98	security custody score, number of prior infractions, Mexican citizenship, age (-), Asian (-), Native American, Florence/Marion (-), facility administrative security level, facility high security level, facility medium security level, time in gang (-), Southeast Asian Aryan Brotherhood, Mexican Mafia, Texas Syndicate, organized crime, Dirty White Boys, Mexakanemi, Netas, White supremacy groups, Crips, Black Gangster Disciples, Border Brothers, Latin Kings, Vice Lords, miscellaneous city, multiple gangs (none monitored), multiple gangs (monitored), risk days	Columbian citizenship, citizenship missing, other citizenship, Hispanic, time served, African American, facility low security level, multiple gang affiliation, Black Guerilla Family, organized crime, Bloods, drug cartel (no other), drug cartel (other), antigovernment, motorcycle, prison gangs (modern), Jamaican Posse, New York street gangs, DC Crews
		Number of official infractions for drug offenses between 3/97 and 2/98	security custody score, number of prior infractions, Columbian citizenship (-), Mexican citizenship, other citizenship, age (-), Asian (-), African American, Florence/Marion (-), facility administrative security level, facility high security level, time in gang (-), Aryan Brotherhood, Texas Syndicate, organized crime, Dirty White Boys, Mexakanemi, White supremacy groups, Bloods, Crips, Black Gangster Disciples, Border Brothers, Latin Kings, Vice Lords, miscellaneous city, multiple gangs (monitored), risk days	citizenship missing, Hispanic, time served, Native American, facility medium security level, facility low security level, multiple gang affiliation, Southeast Asian organized crime, Black Guerilla Family, Mexican Mafia, Netas, drug cartel (other), drug cartel (no other), antigovernment, prison gangs (modern), motorcycle, Jamaican Posse, New York street gangs, DC Crews, multiple gangs (none monitored)

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Multi-Level: Pooled Models (continued)				
		Number of official infractions between 3/97 and 2/98	security custody score, number of prior infractions, Columbian citizenship (-), age (-), time served (-), African American, Florence/Marion (-), facility administrative security level, facility high security level, facility medium security level, facility low security level (-), time in gang (-), Aryan Brotherhood, Black Guerilla Family, Mexican Mafia, Texas Syndicate, organized crime, Dirty White Boys, Mexakanemi, Netas, White supremacy groups, Bloods, Crips, Black Gangster Disciples, Border Brothers, Latin Kings, Vice Lords, antigovernment, motorcycle, prison gangs (modern), Jamaican Posse, New York street gangs, miscellaneous city, multiple gangs (none monitored), risk days	citizenship missing, Mexican citizenship, other citizenship, Hispanic, Asian, Native American, multiple gang affiliation, Southeast Asian organized crime, drug cartel (no other), drug cartel (other), DC Crews, multiple gangs (monitored)
Jiang and Fisher-Giorlando (2002)	431 disciplinary reports that occurred between 5/94 and 11/94 received by 186 inmates housed in a Southern facility for males	Whether official disciplinary report was for a violent incident	inmate housed in working cell block (-), inmate housed in dormitory housing (-), incident occurred in working areas (-), number of children, substance abuse at admission (-), divorced (-)	drug offense, violent offense
		Whether official disciplinary report was for an incident against staff	sentence length (-), divorced, incident occurred during work time (-), incident occurred during free time (-)	inmate housed in working cell block, single, incident occurred in corridors
		Whether the official disciplinary report was for an incident against inmate	incident occurred in corridors, incident occurred in recreation areas, incident occurred during free time, divorced (-), property offense	years of experience of correctional officer issuing report, incident occurred in work cell

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Multi-Level: Pooled Models (continued)				
Kruttschnitt and Gartner (2005)	1,821 inmates from the CA Institution for Women or the Valley State Prison for Women (CA)	Whether inmate reported they had received a disciplinary report since their admission	convict style of doing time, African American, Hispanic, other ethnicity, age (-), pre-incarceration alcohol abuse, incarcerated for drug offense (-), incarcerated for parole/probation violation (-), custody level 1 (-), custody level 2 (-), other custody level (-), time served, sentence length	adapted style of doing time, high school diploma, > high school diploma, married, has children, pre-incarceration drug abuse, incarcerated for property offense, incarcerated for other offense, number of prior adult commitments, served time in CIW, served time in Madera, served time in other facility, VSPW, custody level 3
		Whether inmate reported they had used illegal drugs since their admission	convict style of doing time, African American (-), age (-), pre-incarceration drug abuse, incarcerated for parole/probation violation (-), served time in Madera, custody level 1 (-), other custody level (-), time served, sentence length	adapted style of doing time, Hispanic, other ethnicity, high school diploma, > high school diploma, married, has children, pre-incarceration alcohol abuse, incarcerated for property offense, incarcerated for drug offense, incarcerated for other offense, number of prior adult commitments, served time in CIW, served time in other facility, VSPW, custody level 2 (-), custody level 3
		Whether inmate reported they had been involved in homosexual activity since their admission	adapted style of doing time, convict style of doing time, African American, other ethnicity, age (-), pre-incarceration alcohol abuse, pre-incarceration drug abuse, incarcerated for property offense (-), incarcerated for parole/probation violation (-), served time in CIW, custody level 1 (-), custody level 2 (-), custody level 3 (-), other custody level (-), time served, sentence length	Hispanic, high school diploma, > high school diploma, married, has children, incarcerated for drug offense, incarcerated for other offense, number of prior adult commitments, served time in Madera, served time in other facility, VSPW, custody level 3

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Multi-Level: Pooled Models (continued)				
Griffin and Hepburn (2006)	2,158 male inmates admitted to the AZ Department of Corrections in 1996 who served ≥ 3 years	Whether inmate received an official infraction for assault in their first 3 years of confinement	age (-), African American (-), Mexican American (-), Mexican National (-), gang affiliation	Native American, violent offense, prior incarceration, sentence length, facility security level
		Whether inmate received an official infraction for fighting in their first 3 years of confinement	age (-), facility security level	African American, Mexican American, Mexican National, Native American, violent offense, prior incarceration, sentence length, gang affiliation
		Whether inmate received an official infraction for threat in their first 3 years of confinement	age (-), prior incarceration, sentence length (-), gang affiliation	African American, Mexican American, Mexican National, Native American, violent offense, facility security level
		Whether inmate received an official infraction for weapons in their first 3 years of confinement	age (-), prior incarceration	African American, Mexican American, Mexican National, Native American, violent offense, prior incarceration, sentence length, facility security level, gang affiliation
		Whether inmate received an official infraction for major act in their first 3 years of confinement	age (-), Mexican National (-), violent offense, prior incarceration, sentence length (-), gang affiliation	African American, Mexican American, Native American, facility security level
Dhami et al. (2007)	712 male inmates housed in 3 federal prisons on the West coast	Number of times inmate reported they had been charged with disciplinary infractions (1 = never to 7 = often)	facility security level, time spent in facility, quality of life before imprisoned	sentence length

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Multi-Level: Pooled Models (continued)				
Kruttschnitt and Vuolo (2007)	1,821 inmates housed in the CA Institution for Women or the Valley State Prison for Women (CA), 297 women housed in Downview, Edmund Hills, or Styal (UK)	Whether an inmate reported she had engaged in self harm since their admission	age (-), married, prior prescription for mental health, self harm prior to prison, level of depression, violent offense, months served, prefer time with others (-), closeness to COs, reported problem with overcrowding (-), CIW (-), Downview	White, education, had job, lived alone, had young child, alcohol abuse, drug abuse, commitment to intuition before 20, prior commitment, close friends in facility, feel control, prefer more time alone, number of disciplinary actions, any program participation, problem with facility medical care, problem with lack of programming, Edmund Hills, Styal
		Whether an inmate reported she had engaged in self harm since their admission	age (-), married, prior prescription for mental health, self harm prior to prison, level of depression, violent offense, months served, prefer time with others (-), closeness to COs, England	White, education, had job, lived alone, had young child, alcohol abuse, drug abuse, commitment to intuition before 20, prior commitment, close friends in facility, feel control, prefer more time alone, number of disciplinary actions, any program participation, problem with facility medical care, problem with lack of programming, reported problem with overcrowding
		Whether an inmate reported she had engaged in self harm since their admission	age (-), married, self harm prior to prison, level of depression, prior commitment, violent offense, months served, England (-), England x age, England x live alone, England x CO scale	White, education, had job, lived alone, had young child, prior prescription for mental health, alcohol abuse, drug abuse, commitment to intuition before 20, close friends in facility, feel control, prefer time with others, prefer more time alone, number of disciplinary actions, closeness to Cos, any program participation, problem with facility medical care, problem with lack of programming, reported problem with overcrowding

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Multi-Level: Hierarchical Models				
Wooldredge et al. (2001)	891 inmates housed in 26 state facilities for males in NY	Whether inmate received an official rule infraction during the study period	age (-), non-White, prior arrests, crowding, crowding x age (-)	commitment to convention, seriousness of offense incarcerated for, minimum sentence
	493 inmates housed in 11 state facilities for males in WA	Whether inmate received an official rule infraction during the study period	age (-), non-White, prior arrests, minimum sentence (-), crowding, crowding x age (-)	commitment to convention, seriousness of offense incarcerated for, minimum sentence
	444 inmates housed in 7 state facilities for males in VT	Whether inmate received an official rule infraction during the study period	age (-), prior arrests, minimum sentence, crowding,	commitment to convention, seriousness of offense incarcerated for, crowding x age
Camp et al. (2003)	101,890 inmates housed in 96 FBOP facilities	Whether inmate received an official infraction in 6/01	% White staff, % female staff, number of prior misconducts, initial custody score, custody score ² , age (-), age ² , Mexican citizen	mean age of inmates, integration-race, first year of operation, crowding, % staff < 1 year experience, mean custody score, time at risk, Cuban citizen, other citizen, female, African American, other race, Hispanic
		Whether inmate received an official infraction for violent act in 6/01	mean custody score, number of prior misconducts, initial custody score, custody score ² , age (-), Mexican citizen	mean age of inmates, integration-race, first year of operation, crowding, % White staff, % female staff, % staff < 1 year experience, time at risk, Cuban citizen, other citizen, female, African American, other race, Hispanic
		Whether inmate received an official infraction for drug offense in 6/01	% female staff, mean custody score, number of prior misconducts, age (-), female (-), African American (-)	mean age of inmates, integration-race, first year of operation, crowding, % White staff, % staff < 1 year experience, initial custody score, custody score ² , time at risk, Mexican citizen, Cuban citizen, other citizen, other race, Hispanic

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Multi-Level: Hierarchical Models (continued)				
		Whether inmate received an official infraction for security offense in 6/01	integration-race (-), % staff < 1 year experience, number of prior misconducts, age (-)	mean age of inmates, first year of operation, crowding, % White staff, % female staff, mean custody score, initial custody score, custody score ² , time at risk, age ² , Mexican citizen, Cuban citizen, other citizen, female, African American, other race, Hispanic
		Whether inmate received an official infraction for accountability offense in 6/01	% White staff, % female staff, number of prior misconducts, initial custody score, custody score ² , time at risk (-), age (-), age ² , Mexican citizen	mean age of inmates, integration-race, first year of operation, crowding, % staff < 1 year experience, mean custody score, Cuban citizen, other citizen, female, African American, other race, Hispanic
		Whether inmate received an official infraction for property offense in 6/01	% White staff, number of prior misconducts, age (-), Mexican citizen	mean age of inmates, integration-race, first year of operation, crowding, % female staff, % staff < 1 year experience, mean custody score, initial custody score, custody score ² , time at risk, age ² , Cuban citizen, other citizen, female, African American, other race, Hispanic
		Whether inmate received an official infraction for other offense in 6/01	crowding, number of prior misconducts, initial custody score, age (-), age ² , African American	mean age of inmates, integration-race, first year of operation, % White staff, % female staff, % staff < 1 year experience, mean custody score, custody score ² , time at risk, Mexican citizen, Cuban citizen, other citizen, female, other race, Hispanic

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Multi-Level: Hierarchical Models (continued)				
Huebner (2003)	4,168 male inmates housed in 185 state facilities across the U.S. (sub-sample of the 1991 Survey of Inmates in State Correctional Facilities)	Number of times inmate reported he was found guilty of infraction for physically assaulting another inmate since incarcerated	African American, other race, age (-), education (-), gang involvement, criminal history, facility population, Southern facility, maximum security	Hispanic, citizenship, married, years incarcerated, % paid for work, % work outside, % work inside, % received solitary confinement, % lost work assignment
		Number of times inmate reported he was found guilty of infraction for physically assaulting staff since incarcerated	African American, age (-), education (-), gang involvement, criminal history, % work outside, % work inside, maximum security	other race, Hispanic, citizenship, married, years incarcerated, % paid for work, % received solitary confinement, % lost work assignment, facility population, Southern facility
Gillespie (2005)	1,054 inmates housed in 30 facilities (11 in KY, 8 in TN, and 11 in OH)	Drug abuse (scale of summed responses to 4 questions inquiring about the number of times (never = 1 to > 12 = 4) inmate reported using forms of drugs or alcohol in the past 12 months)	age (-), race (-), years incarcerated, involvement in prison religious programs (-), previous use of illegal drugs on the street, previous sale of illegal drugs on the street, number of deviant prison associates, individual definitions about the prison rules (-), others definitions about the prison rules, aggregate inmates perception of crowding, aggregate inmates perception of crowding x previous use of illegal drugs on the street	age of prison, prison location, security level, number of prison programs, inmate to staff ratio, % nonwhite, % young, capacity
Jiang (2005)	12,472 inmates housed in 275 state facilities across the U.S. (sub-sample of the 1997 Survey of Inmates in State and Federal Correctional Facilities)	Number of times per month inmate reported to be found guilty of infraction for substance abuse since incarcerated	regular drug use before incarceration, age (-), White, crime history, mean age of inmates (-), facility population (-), medium security facility (-), facility for females (-), coed facility	sentence length, minimum security facility

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Multi-Level: Hierarchical Models (continued)				
		Number of times per month inmate reported to be found guilty of infraction not for substance abuse since incarcerated	regular drug use before incarceration, age (-), White (-), crime history, mean age of inmates (-), facility population (-), medium security facility (-), facility for females, coed facility	sentence length, minimum security facility
Jiang and Winfree (2006)	8,934 male inmates housed in 207 state facilities across the U.S. (sub-sample of the 1997 Survey of Inmates in State and Federal Correctional Facilities)	Number of times per month inmate reported to be found guilty of a rule infraction since incarcerated	married (-), received or made calls to children (-), age (-), White (-), number of prior sentences, regular drug use before incarceration, facility security level, population (-)	children, received or sent mail to children, visited by children, sentence length, mean number of prison programs participated in, average number of inmate-organized groups or clubs participated in, mean age, % inmates White
	2,027 female inmates housed in 45 state facilities across the U.S. (sub-sample of the 1997 Survey of Inmates in State and Federal Correctional Facilities)	Number of times per month inmate reported to be found guilty of a rule infraction since incarcerated	received or made calls to children (-), age (-), number of prior sentences, sentence length, mean age	married, children, received or sent mail to children, visited by children, White, regular drug use before incarceration, mean number of prison programs participated in, mean number of inmate-organized groups or clubs participated in, facility security level, population (-), % inmates White
Wolff et al. (2007)	6,964 inmates housed in 12 facilities for males	Whether inmate reported being a victim of nonconsensual sexual victimization (forced sex acts) by another inmate in the past 6 months	prior treatment for other mental health problems, sexual victim prior to age 18, education	age, White, Latino, prior treatment for schizophrenia or bipolar disorder, time at facility, time in prison since 18, committed violent crime, had young victim, age at first arrest, thought gang activity high, mean age
		Whether inmate reported being a victim of abusive sexual victimization (intentional touching of specified areas of the body) by staff in the past 6 months	age (-), White, prior treatment for other mental health problems, committed violent crime, sexual victim prior to age 18, thought gang activity high, education	Latino, prior treatment for schizophrenia or bipolar disorder, time at facility, time in prison since 18, had young victim, age at first arrest, mean age

Appendix 2: Models from Empirical Studies of Prison Disorder: 1990-2007 (continued)

Study	Sample(s)	Dependent Variable	Significant Predictors	Insignificant Predictors
Multi-Level: Hierarchical Models (continued)				
		Whether inmate reported being a victim of any sexual victimization by staff in the past 6 months	age (-), White, prior treatment for other mental health problems, committed violent crime, sexual victim prior to age 18, education	Latino, prior treatment for schizophrenia or bipolar disorder, time at facility, time in prison since 18, had young victim, age at first arrest, thought gang activity high, mean age
		Whether inmate reported being a victim of any sexual victimization by another inmate or staff in the past 6 months	White, prior treatment for other mental health problems, committed violent crime, sexual victim prior to age 18, thought gang activity high, education	age, Latino, prior treatment for schizophrenia or bipolar disorder, time at facility, time in prison since 18, had young victim, age at first arrest, mean age

Note: (-) indicates an inverse relationship between predictor and outcome.

Appendix 3: Responses (Rates) to Inmate Survey by Facility

Facility	Sampling Frame	Sample Size	Sample Size Available ¹	Responses (rate)	Useable Responses (rate)
MERPC	342	130	126	119 (.94)	106 (.84)
TOCI	923	130	120	74 (.62)	72 (.60)
ACI	1,339	260	244	166 (.68)	160 (.66)
OCF	131	83	75	63 (.84)	61 (.81)
LAECI	1,508	260	259	149 (.58)	146 (.56)
TCI-CAMP	404	130	130	106 (.82)	104 (.80)
TCI-MAIN	957	130	130	93 (.72)	92 (.71)
OSP	527	130	120	89 (.74)	86 (.72)
MANCI	1,978	260	255	157 (.62)	156 (.61)
NCI	2,466	260	240	196 (.82)	189 (.79)
CCI	2,871	260	248	195 (.79)	191 (.77)
SOCF	1,451	130	126	85 (.67)	83 (.66)
ORW	2,220	130	130	110 (.85)	108 (.83)
LECI	2,340	260	260	243 (.93)	239 (.92)
WCI	1,330	260	260	203 (.78)	196 (.76)
DCI	470	130	127	122 (.96)	121 (.95)
FPRC	489	130	123	108 (.88)	108 (.88)
RCI	2,259	130	130	107 (.82)	104 (.80)
MACI	2,236	130	124	97 (.78)	97 (.78)
LOCI	1,882	130	127	110 (.87)	107 (.84)
PCI	1,839	130	128	106 (.83)	104 (.81)
CMC	71	71	70	67 (.96)	67 (.96)
NEPRC	598	130	127	121 (.95)	119 (.94)
GCI	1,344	130	128	110 (.86)	109 (.85)
LORCI	2,034	130	118	89 (.75)	89 (.75)
NCCTF	671	130	122	96 (.79)	94 (.77)
HCF	488	130	128	116 (.91)	111 (.87)
CRC	1,578	130	119	115 (.97)	115 (.97)
BECI	2,275	130	126	124 (.98)	123 (.98)
SCI	1,456	130	127	103 (.81)	96 (.76)
NCCI	2,310	130	127	119 (.94)	116 (.91)
MCI	1,854	130	128	110 (.86)	109 (.85)
RICI	2,566	130	127	108 (.85)	106 (.83)
Total	47,207	5,094	4,930	3,976 (.81)	3,884 (.79)

Note: ¹Unavailable inmates included inmates who had been released, transferred, posed a safety risk, were on a visit, or were off the compound (e.g., court).

Appendix 4. Other Measures Considered for the Final Analyses

Inmate-Level

Non-White, Other minority, Married, Living with child, Number of children living with, Married with children, \geq high school diploma, Some college, Employed prior to sentence, Employed or receiving SSI prior to sentence, Receiving SSI prior to arrest, Income prior to arrest, Used illegal drugs, Number of prior incarcerations, Age at first incarceration, Incarcerated for sex offense, Incarceration for drug offense, Sentence length (in months), Sentence \geq 5 years, Number of hours in educational/vocational program per week, Enrolled in educational/vocational program, Number of hours in recreation per week, Had facility work assignment, Active/disruptive gang member.

Facility-Level

Number of years in operation, Most inmates classified maximum security, Most inmates classified \geq close security, Proportion inmates \geq close security, Average age of inmates, crowding (population/rated capacity), Inmate heterogeneity, proportion inmates non-White, proportion inmates African American, proportion staff non-White, proportion staff African American, Ratio of correctional officers to inmates, Proportion inmates in disciplinary housing, Proportion inmates with facility work assignment, Average number of hours spent at facility work assignment, Proportion inmates in education/vocational programming, Average number of hours spent in education/vocational programming, Average number of hours spent in recreation, Proportion inmates gang members, Coercive control (factor of ratio of correctional officers to inmates, the use of force rate, cell search rate, and the rate of administrative transfers to higher security facilities), Grievance rate, *Esprit de corps* of correctional officers (see Useem and Reisig, 1998), Warden's perceived efficacy of correctional officers (1-10).

Appendix 5. Specific Rule Violations Included within Categories of Inmate Misconduct

Category of Inmate Misconduct

Violent offenses¹

Violations of Ohio inmate rule numbers 1, 3, 4, 5, 8, 10, 19, 36, 37

Drug/alcohol offenses¹

Violations of Ohio inmate rule numbers 39, 40, 41, 42, 43

Other nonviolent infractions¹

Violations of Ohio inmate rule numbers 9, 20, 21, 22, 23, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61

Note: ¹ specific definitions of infractions are contained in Appendix 1.