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INMATE-, INCIDENT-, AND FACILITY-LEVEL FACTORS ASSOCIATED WITH ESCAPES FROM CUSTODY AND VIOLENT OUTCOMES

by

BRYCE E. PETERSON

A dissertation submitted to the Graduate Faculty in Criminal Justice in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York

2015

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The manuscript has been read and accepted for the Graduate Faculty in Criminal Justice in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy

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Abstract

INMATE-, INCIDENT-, AND FACILITY-LEVEL FACTORS ASSOCIATED WITH ESCAPES FROM CUSTODY AND VIOLENT OUTCOMES

by

Bryce E. Peterson

Advisor: Professor Jeffrey Mellow, Ph.D

Introduction: Preventing escapes from custody is a critical function of prisons, jails, and the individuals who run these correctional facilities. Escapes are a popular topic in the news, among lawmakers, and in public discourse. Much of this interest stems from the widespread notion that escapees pose a serious threat to public safety, as well to the safety of correctional staff and law enforcement officers tasked with preventing and apprehending them. However, despite the importance of preventing escapes and minimizing violence, there has been very little empirical research on these issues in the past several decades. Extant research has also been limited in terms of its depth, breadth, and methodological rigor. Thus, the current dissertation seeks to address the following research questions:

1. What jail-level factors are related to escape-proneness?
2. What prison-level factors are related to escape-proneness?
3. What inmate-level characteristics are associated with escape behavior?
4. How often and at what point does violence occur during escapes?
5. What facility-level factors influence the likelihood of an escape being violent?
6. What incident-level variables influence the likelihood of an escape being violent?
7. What characteristics of the escapee influence the likelihood of an escape being violent?

Methods: To address these research questions, this study explores the degree to which facility-, incident-, and inmate-level factors are associated with two overall outcomes:

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1) escapes from custody and 2) violent escape outcomes. To accomplish this, a series of analyses were conducted using several different sources of data. Specifically, the first two analyses used data from the *2011 Annual Survey of Jails* (n=366) to examine how jail-level variables impact the number of escapes and attempted escapes from jails, and from the *2005 Census of State and Federal Adult Correctional Facilities* (n=1821) to examine how prison-level variables impact the number of escapes and the number of walkaways from prisons. The third analysis used the 2008 and 2009 iterations of the *National Corrections Reporting Program* (n=7,300) to test whether relevant inmate-level characteristics were associated with the likelihood of an individual being an escapee. The final set of analyses examined the degree to which facility-, inmate-, and inmate-level factors were able to predict four violent escape outcomes: violence at the breakout, in the community, during recapture, and overall. These analyses used data from the *Correctional Incident Database, 2009* (n=610).

Findings: Several jail-level variables—including rated capacity, ethnic heterogeneity, percent noncitizens, and privately operated—were significantly associated with the number of escapes and escape attempts from jails. There were also many prison-level variables associated with the number of escapes and the number of walkaways from a facility, including measures related to the facilities' administration and management (e.g., rated capacity, percent capacity, inmate-staff ratio, inmates from other authorities, court order, secure perimeter, security level, region), inmate populations (e.g., percent male, percent noncitizens), and treatment and programming options (e.g., percent on work assignment, percent on work release, alcohol or drug treatment, inmates permitted to leave).

At the individual-level, information about inmates' demographics (e.g., age, sex, race), criminal histories (e.g., prior time in prison and jail, prior escape), and current

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sentence (offense type and counts, sentence length, percent of sentence served) were associated with individual escape behavior.

Finally, findings indicate that violence is, overall, a relatively rare outcome in escape incidents, though when it does occur it is precipitated by certain situational factors. Incident-level factors were the best indicators of violence, including whether the escape occurred in secure custody, the location of the incident, and the start time of the escape. The classification of the facilities was also associated with violence (i.e., escapees from higher security prisons and jails were more likely to use violence than escapees from minimum security facilities). Inmate-level factors were the least important for understanding when an escape would result in a violent outcome, though some of the findings indicate that young, male escapees, who were in custody for a violent offense and had a history of escaping, were more likely to use violence during their escapes than other escapees.

Discussion and Implications: These findings demonstrated that opportunity- and place-based theories of criminal behavior, such as the situational crime prevention and routine activities frameworks, are most useful for understanding when escapes are likely to occur and when they are likely to result in violence. For example, higher security prison facilities had fewer escapes than lower security prisons, but prisons that permitted inmates to leave the facility (e.g., to study, participate in a rehabilitative program, or work) had a greater number of walkaways. At the individual level, inmates who were on community release were much more likely to have been escapees than those who were not on community release. Finally, inmates who escaped during transport were more likely to use violence than those who escaped under other circumstances.

Based on these findings, this dissertation provided several recommendations for policy and practice. For example, it was recommended that correctional administrators

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adopt strategies for preventing escapes that are rooted in the situational crime prevention framework. These might include modifying the environment and enhancing certain types of security features, but could also include providing counseling to inmates, allowing more home visits and furloughs, offering more programming in the prison, and protecting inmates when their safety is threatened. It was also recommended that administrators identify and implement best practices for situations in which violence is most likely to occur, such as during inmate transport. Finally, given that most escapes are nonviolent and relatively minor incidents, it was recommended that administrators consider expanding their practice of punishing escapees internally rather than charging them with a new crime that could potentially add years to their sentence.

Conclusion: Though there are several substantive and methodological limitations to the current dissertation, this research contributes to the literature by: analyzing the impact of a range of facility-, incident-, and inmate-level factors on escapes from custody and violence; examining a broader range of escapes from across the country; using more recent data and more rigorous analyses; clarifying some of the contradicting and confusing findings from previous studies; and providing a thorough analysis of the amount, scope, and predictors of violence escape outcomes.

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Chapter 1: Introduction

The Need for Escape Research

It has been said that "if there were such a thing as first principles in the field of corrections, the idea that prisons ought to prevent inmates from escaping would certainly qualify for the list" (Culp, 2005, 270). In line with this sentiment, lawmakers and correctional administrators are tasked with developing laws and policies to prevent and punish escape behavior. Escapes are also often portrayed as sensational correctional incidents in news stories (Peterson, 2014), which piques the public's curiosity and contributes to their fear of crime (Fisher, Allan, & Allan, 2004). Much of this interest stems from the belief that escapees pose a serious threat to public safety. One United States Circuit Court judge wrote that an escapee is "likely to possess a variety of supercharged emotions, and in evading those trying to recapture him, may feel threatened by police officers, ordinary citizens, or even fellow escapees" (*U.S. v. Gosling*, 1994, 1142).

This idea that every escape scenario has the potential to lead to violence has affected how politicians, the courts, prison administrators, and the public understand escapes and develop legislation, policies, practices, and perceptions regarding these correctional incidents. The courts have held in recent years that escapes qualify as violent crimes under The Armed Career Criminal Act (ACCA) 18 U.S.C. 924(e), enacted by Congress in 1984. An escape is considered to be a violent felony even if no actual violence occurred during the incident (see *U.S. v. Golden*, 2006; *U.S. v. Chambers*, 2007; *U.S. v. Templeton*, 2008). Whether these incidents are violent or not, inmates who escape from custody typically face very stiff sanctions under many state statutes. In Alabama, for example, escape is punishable by up to 20 years in prison (AL Penal Code § 13A-10-31).

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Limitations of Extant Research

Given the serious penalties for escape, there is a clear need for rigorous, empirical research on this behavior. In particular, there is a need to understand what factors are associated with escaping from custody, as well as what factors are associated with violent outcomes after an escape occurs. Unfortunately, the existing research is extremely limited. One such limitation is the dearth of current, empirical research. The research that is available is outdated (e.g., Anson & Hartnett, 1983; Basu, 1983; Beall & Panton, 1956; Duncan & Ellis, 1973; Hilbrand, 1969; Holt, 1974; McNeil 1978; Morgan, 1967; Murphy, 1984; Scott et al., 1977; Shaffer, Bluoin, & Pettigrew, 1985; Verlag, 1978; Wharry, 1972; White, 1979), not methodologically rigorous (Archambeault & Deis, 1998; California Department of Corrections and Rehabilitation, 2011; Carlson, 1990; Culp & Bracco, 2005 Culp, 2005; Jan, 1980; Lyons, 2011; Sandhu, 1996; U.S. Sentencing Commission, 2008), and focuses on intra-state escape trends or case analyses of particular institutions (Cowles, 1981; Florida Department of Corrections, 2011; Virginia Department of Corrections, 1978; 1980, 1982; Walters & Crawford, 2013). Thus, while there is a sizeable body of literature on escapes from custody, such as on the demographic profiles of escapees or the characteristics of the facilities from which inmates escape, these publications do not provide consensus or empirical understanding of the issue.

Another major limitation is that very few studies have looked at the amount of violence associated with escapes, and the findings from these studies are mixed. A comprehensive study of escapes from federal facilities found that violence occurs in approximately 16 percent of escapes (U.S. Sentencing Commission, 2008), while Culp (2005) estimated that approximately 8 percent of escapes from state prisons result are associated with violent outcomes. Both of these studies had methodological weaknesses and were limited in their scope. The U.S. Sentencing Commission only analyzed federal escape cases,

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while Culp only examined violence in a very small sample (n=88) of escapes from secure prisons that were reported in print news. Further, both of these studies relied on descriptive analyses for their analyses of violence.

Research Questions

The current research seeks to contribute to the literature on escapes from custody by expanding on existing research and addressing the aforementioned limitations of this body of work. The current research questions include:

RQ1: What jail-level factors are related to escape-proneness? The limited research on facility-level explanations of escapes has generally only focused on escapes from state and federal prisons. The current study extends this research by examining how jail-level characteristics influence the number of escapes that occur within local correctional facilities, such as jails and detention facilities.

RQ2: What prison-level factors are related to escape-proneness? It is important for policy makers to determine whether certain facilities are more susceptible to escapes. This can inform decision-makers about what can be done to reduce the frequency of escapes from particular facilities. While some research has demonstrated a link between some prison-level factors—such as crowding, staff-inmate-ratio, and facility classification—and escapes, the true strength and direction of these relationships remain unclear.

RQ3: What inmate-level characteristics are associated with escape behavior? Previous research has identified inmate-level characteristics associated all types of institutional misbehaver. Echoing these findings, escape research has shown that variables such as age, race, and criminal history are significantly associated with an individual's likelihood of escaping from custody. The current research seeks to

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broaden this understanding by using more advanced quantitative methods, current data, and a national scope.

RQ4: How often and at what point does violence occur during escapes? Research on the frequency of violent escape outcomes is limited. The little research that is available indicates that most escapes do not lead to violence. Still, federal judges responsible for applying the ACCA to defendants with histories of escape are not only concerned with violence occurring at the point of leaving correctional custody (during the breakout), but also while the inmate is out in the community (post breakout), and while the inmate is being re-apprehended by authorities (during recapture). Thus, in addition to violence overall, the current research attempts to pinpoint the amount, scope, and predictors of violence at each stage of the escape incident.

RQ5: What facility-level factors influence the likelihood of an escape being violent? There has not been any research attempting to determine if facility-level factors can predict whether an escape will be violent. The current research focuses on building and testing a theoretical model of violent escapes. This model will examine characteristics of the facility (including jails and prisons) to determine if these influence the likelihood of violence occurring during the breakout, post breakout, and recapture stages of the escape incident.

RQ6: What incident-level variables influence the likelihood of an escape being violent? Previous research has examined the incident-level factors associated with escaping from custody, but not how these variables can influence the likelihood of an escape being violent. Nevertheless, many of these variables likely affect whether an escape will result in violence. For example, it is probable that escapes from secure areas are more likely to be violent than escapes from non-secure areas, especially in

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terms of violence during the breakout period. In addition, escapes that occur outside of the facility (e.g., while the inmate is being transferred to another institution or transported to an offsite medical facility) may create more opportunity for violence than escapes that occur inside the facility.

RQ7: What characteristics of the escapee influence the likelihood of an escape being violent? Previous studies have found that certain inmate characteristics are associated with various type of inmate misconduct, including escape behavior. The current study examines how these characteristics influence whether an escapee will use violence during the breakout, post breakout, or recapture stage of the incident. While findings from previous research suggest that property offenders are more likely to escape from custody than violent offenders, it is probable that inmates with violent records are more likely to use violence at some point during an escape incident than inmates without violent records. Characteristics such as escapees' age, sex, and sentence length might also help predict whether an escapee will use violence during the escape incident.

Theoretical Framework

Although the current research is exploratory in nature, its theoretical framework draws from general theories of correctional misconduct, such as the importation model, deprivation model, and management perspective. It also draws from criminological theories such as situational crime prevention, routine activities, and self-control. Chapter three provides a more detailed examination of each of these theories and how they are expected to relate to escapes from custody and violent escape outcomes. Notably, this theoretical framework guides both of the overall analyses (i.e., the analysis of factors associated with escape and the analysis of factors associated with violent escape outcomes). While it is possible that there are different theoretical explanations for the two overall outcomes

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(escapes and violent escape outcomes), the limited extant literature on the topic has not clearly draw such a distinction. Moreover, as both of these overall outcomes can be categorized as types of institutional misbehavior, it is theoretically defensible to use similar frameworks for both analyses. Still, while the current study does not focus on making theoretical distinctions based on the type of outcome, the implications of the research do vary based on whether the focus is on individual characteristics, facility characteristics, or incident-level factors.

For example, at the individual-level, the current research analyzes how several demographic and criminal history variables relate to escape behavior (chapter six) and violent escape outcomes (chapter seven). The variables included in these analyses contribute to the understanding of the importation model, which is typically tested at the individual level. Additionally, the variables in these analyses inform our understanding of the routine activities framework in terms of which inmates are "motivated" to escape or which escapees are "motivated" to use violence to facilitate their escape. Some of the individual-level variables can also be seen as proxy measures of self-control, even though they are not perfect measures of this construct.

At the incident-level, several variables will be used as predictors of violent escape outcomes (chapter seven), including time of day, day of week, location of the incident, length of time out of custody, whether there was a catalyst even that preceded the escape, etc. Incident-level variables are essential for understanding how well the situational crime prevention framework can be used to explain the likelihood of violence occurring during an escape from custody. Similarly, variables at the incident level explain how suitable the "target" (i.e., the escape) was under a routine activities framework.

Finally, following previous research, the current research will determine if various facility-level characteristics are associated with the number of escapes from jail (chapter

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four) and prison (chapter five), as well as whether these characteristics influence whether an escape will result in violence (chapter six). Facility-level variables include inmate-staff ratio, the size of the facility, crowding, and demographic information of the inmate population. These variables have been used in empirical tests of both the deprivation model and the management perspective. Moreover, many facility-level variables fit under the broader conception of "capable guardianship" under the routine activities framework. For example, a greater staff to inmate ratio, higher security classification, and less crowding are indicative of increased "guardianship". Thus, the current research seeks to inform several theoretical explanations of inmate misbehavior by investigating the inmate-, incident-, and facility-level factors associated with escapes from custody and violent escape outcomes. Table 1 (page 10) summarizes the theoretical implications of each research question and the corresponding analyses.

Plan of Analysis

The next chapter, **chapter two**, provides a detailed examination of the current state of escape research. This includes an examination into the trends, definition, and correlates of escape. Chapter two also discusses the implications of escapes that result in violence, including the types and prevalence of violent escape outcomes. Following that, **chapter three** provides an overview of theoretical explanations of escape, including a discussion of the following theoretical frameworks: the importation model, the deprivation model, the management perspective, situational crime prevention, routing activities, and self-control theory.

To address the study's research questions, the chapters four through seven explore the facility-, incident-, and inmate-level factors associated with two overall outcomes: 1) escapes from custody and 2) violent escape outcomes. To identify the facility-level characteristics of escape, **chapter four** presents the methodology and findings from the

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analyses of the *2011 Annual Survey of Jails* (2011 ASJ), while **chapter five** summarizes the analyses of the *2005 Census of State and Federal Adult Correctional Facilities* (prison census). As such, chapter four assesses the facility-level characteristics of jails and how these influence the number of escapes that occur in jails and detention facilities, while chapter five explores how the characteristics of state prisons affect the amount of escapes these facilities experience. In the analyses from both of these chapters, the outcome variables are the *number* of escapes from each facility. This allows one to determine the degree to which facility-level characteristics are associated with the facility's proneness to escapes.

Chapter six explores the individual-level characteristics of inmates who escape from prison. The analyses summarized in this chapter use data from the 2008 and 2009 *National Corrections Reporting Program* (NCRP) to compare escapees to non-escapees. There are several conceptual difficulties with the research design presented in chapter six. Most notably, it was difficult to construct a comparable group of prisoners who did not escape from custody. To address that problem, the current research compares inmates who escaped from a state prison in 2008 and 2009 to inmates who were released from custody for some other reason, such as parole or expiration of their sentence. In other words, the dependent variable in the individual-level analyses is "type of release" (coded as either "escape" or some other type of release from prison). Unfortunately, there are no similar databases for individuals incarcerated in jails, so this analysis focuses solely on the individual-level characteristics associated with prisoners' escape behavior.

It is important to note that the data used in chapters four, five, and six come from administrative datasets (i.e., the 2011 ASJ, prison census, and NCRP). Even though administrative datasets are widely used in correctional research—especially in studies of institutional misbehavior and escapes from custody—there are many issues with

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administrative data that affect their validity. For example, administrative data are, by definition, not collected for research purposes. As a result, many of the variables in these chapters measure theoretical constructs differently than the way they have been measured in prior research. Other potential issues to the validity of these administrative data include varying definitions of key constructs across jurisdictions and inaccurately-reported data. These issues (among others) are discussed in more detail in the limitations section of chapter nine.

Following the four analytic chapters on the factors associated with escapes from custody, **chapter seven** examines the individual-, incident-, and facility-level factors associated with violent escape outcomes. To accomplish this, the analyses in chapter seven use the *Correctional Incident Database, 2009* to compare escapes that lead to a violent outcome with escapes that did not lead to a violent outcome. Violence is analyzed across the entire spectrum of the escape incident, including during the breakout, post breakout, and recapture periods. Table 1 below summarizes the independent and dependent variables that are used in each of the aforementioned analyses. In addition, chapters four, five, six, and, seven provide more detailed descriptions of the data, methods, and findings of each of these analyses.

Next, **chapter eight** provides a discussion of the findings from the previous chapters. This discussion is organized by how the findings from chapters four through seven answered the study's research questions. This chapter also discusses the implications of these findings for research and theory, as well as for policy and practice. The final chapter, **chapter nine**, concludes this dissertation with a discussion of the study's methodological limitations and key contributions to the literature.

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Table 1. *Datasets and Planned Analyses*

	Dataset	Variables Used in the Analyses	Theoretical Implications	Analytic Technique
Overall Analysis: Predictors of Escape				
RQ1	*2011 Annual Survey of Jails* (n=366)	**Dependent:** #escapes and attempted escapes. **Independent:** Rated capacity; %capacity; %male; %juvenile; Ethnic heterogeneity; %short stay; %unconvicted; %turnover; %noncitizens; Inmate- correctional staff ratio; Inmate-other staff ratio; %of inmate from other authorities; Privately operated; Region.	Deprivation Theory; Management Perspective; Routine Activities (Capable Guardianship).	Negative Binomial Regression
RQ2	*2005 Census of State and Federal Adult Correctional Facilities* (n=1821)	**Dependent:** #escapes; #walkaways. **Independent:** Age of facility; Rated capacity; %capacity; %male; Primarily youthful offenders; Ethnic heterogeneity; %short sentence; %unsentenced; %noncitizens; %on work assignment; %on work release; Number of programs; Inmate-male correctional staff ratio; Inmate-female correctional staff ratio; Inmate-male treatment staff ratio; Inmate-female treatment staff ratio; Alcohol or drug treatment; Mental health treatment; Inmates from other authorities; Court order; Inmates permitted to leave; Secure perimeter; Security level; Operator; Private; Region.	Deprivation Theory; Management Perspective; Routine Activities (Capable Guardianship).	Negative Binomial Regression
RQ3	*2008 & 2009 National Corrections Reporting Program (n=7,300)*	**Dependent:** Type of release. **Independent:** Race; Sex; Education; Age; Prior prison time in months; Prior jail time in months; Prior escape; Current offense; Counts of current sentence; Sentence length in months; %of sentence served; Community release prior; Facility released from; Season.	Importation Model; Routine Activities (Offender Motivation); Self-Control.	Logistic Regression
Overall Analysis: Predictors of Violence				
RQ4	*Correctional Incident Database* (n=610)	**Dependent:** Violence at breakout; violence in the community; Violence during recapture; Overall violence	-	Descriptive Statistics
RQ5	*Correctional Incident Database* (n=610)	**Dependent:** Violence at breakout; Violence in the community; Violence during recapture; Overall violence. **Independent:** Age of the facility; Rated capacity; %capacity;	Deprivation Theory; Management Perspective; Routine	Logistic Regression

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		Gender demographics; Age demographics; Inmate-total staff ratio; Classification; Facility administrator; Privately operated; Facility accredited; Region; Number of escapes.	Activities (Capable Guardianship).	
RQ6	*Correctional Incident Database* (n=610)	**Dependent:** Violence at breakout; Violence in the community; Violence during recapture; Overall violence. **Independent:** Assistance received; Evidence of planning; Catalyst event; Start time; Day of week; Incident location; Secure custody; Season; Recaptured; Number of escapees; Hours out.	Situational Crime Prevention; Routine Activities (Target Suitability).	Logistic Regression
RQ7	*Correctional Incident Database* (n=610)	**Dependent:** Violence at breakout; Violence in the community; Violence during recapture; Overall violence. **Independent:** Age, Sex, Race, Committing offense, Escape history, Sentence length, Sentence left.	Importation Model; Routine Activities (Offender Motivation); Self-Control.	Logistic Regression

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Chapter 2: Literature Review

Escape Trends

It is difficult to analyze escape trends across time in the United States because there is varying definitions of what qualifies as an escape. Still, most research indicates that there has been a distinct downward trend in the number and rate of escapes from custody over the past few decades. As indicated in Figure 1 below, one study estimated that there were 12.4 escapes per 1,000 inmates in United States prisons in 1981, which declined sharply to 0.5 escapes per 1,000 inmates by 2001 (Useem and Piehl 2006; see also Davis, 1992; Lillis, 1993; Culp, 2005). Though these nationwide estimates are not available beyond 2001, there is some indication that the escape rate has since declined even further. By 2010, fewer than 0.1 inmates per 1,000 escaped from state prisons in California (California Department of Corrections and Rehabilitation, 2011), New York (Lyons, 2011), and Florida (Florida Department of Corrections, 2011).

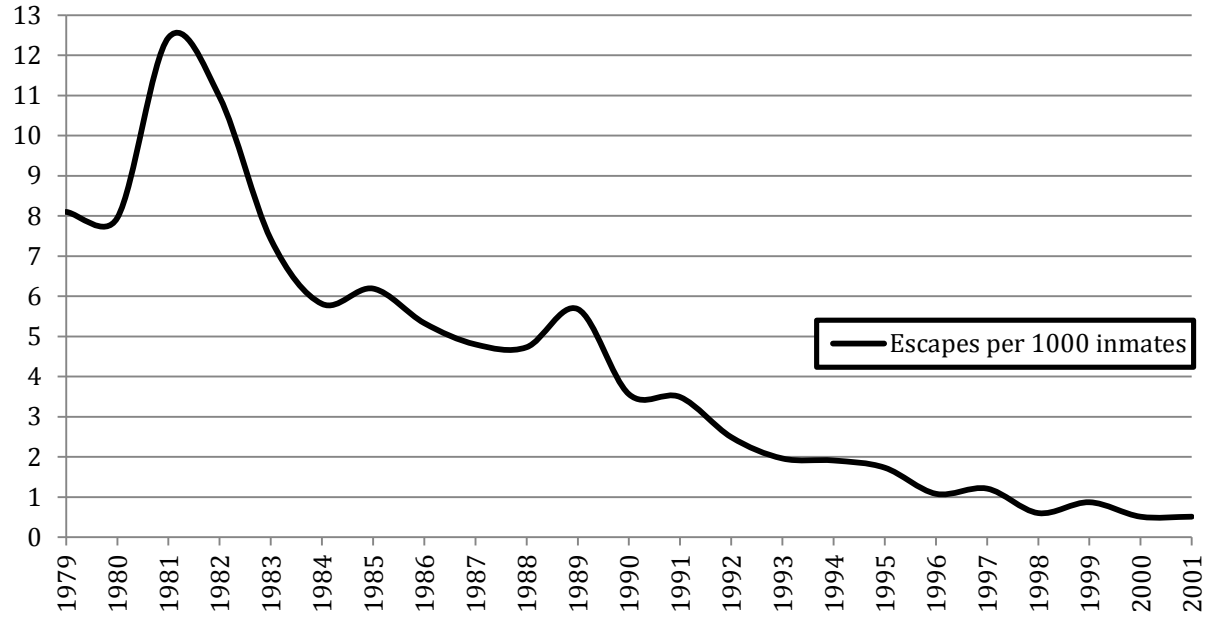

Figure 1: *Escapes per 1000 inmates in U.S. Prisons, 1979-2001*
Source: Corrections yearbook, as analyzed by Useem & Piehl (2006)

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What is an "Escape"?

One critical limitation of research on escapes from correctional custody is the inconsistent definition of "escape". Definitions of escape are found in, and vary across, legal codes, professional correctional organizations, and research studies. Correctional administrators and other government agencies also differ in how they maintain records of escape incidents. This lack of consistency erodes the construct validity of escape research, making it questionable to compare escapes statistics, research, policies, or sanctions across jurisdictions (Culp, 2005; Victoria Social Welfare Department, 1977). At most, "national escape totals and escape rates should be considered best estimates rather than precise counts" (Culp, 2005, 287).

Across jurisdictions, "escapes" are often placed into different categories. For example, the term "escape in the first degree" is often used to refer to the most serious types of escape incident, even though the specifics of this term vary. In New York, "escape in the first degree" occurs when an individual has been charged with or convicted of any felony and escapes from a "detention facility" (defined as any place used for confinement), or is charged with or convicted of a serious felony and escapes from "custody" (defined as being restrained by a public servant). In Alabama, conversely, an "escape in the first degree" sometimes requires the use of violence (e.g., force, threat of force, or the use of a weapon) and always includes either escapes or *attempted escapes* from custody. Moreover, in Alabama, first degree escapes are punishable by up to 20 years in prison (AL Penal Code § 13A-10-31), while in New York this crime is only punishable by up to five years in prison (NY Penal Code § 205.15).

In various research outlets, the definitional issues of escape are compounded even further. Akin to legal statutes, some research has combined completed escapes and attempted escapes (e.g., The Annual Survey of Jails; U.S. Sentencing Commission, 2008).

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Other research studies have distinguished between escape incidents where an inmate simply "walked away" from a facility with no perimeter security (usually a minimum security facility), and more serious "escapes" from medium or maximum security facilities that involved a little more ingenuity, such as scaling a fence, tunneling through under a perimeter, or tricking correctional staff (Culp, 2005; Sturrock, Porprino, & Johnson, 1991; U.S. Sentencing Commission, 2008). Further, while some studies have distinguished between escapes that occur within facilities and escapes that occur while the inmate is outside of the facility, such as during transport or an offsite medical visit (ASCA, 2012; U.S. Sentencing Commission, 2008), others have excluded the latter type of incident altogether (Culp, 2005).

A particular kind of escape that appears in research is an "AWOL". AWOL typically refers to an incident where an inmate fails to return to the facility after an authorized leave of absence. Thus, "AWOL" usually stands for "Absent Without Leave". Still, other reports use the term AWOL to mean "Arrested While On Leave", which is when an inmate is arrested by a local law enforcement agency while on an authorized leave of absence from the facility (Chard-Wierschem, 1995). In general, however, it is difficult to determine how researchers define "escape", "walkaway", or "AWOL" as most studies do not clearly articulate their inclusion or exclusion criteria.

Another source of escape definitions is professional correctional organizations. Professional organizations produce definitions that can be used across jurisdictions. The Association of State Correctional Administrators (ASCA), for example, developed performance-based standards for state departments of corrections (ASCA, 2012). The ASCA differentiates between four types of escape incidents:

1. First, the ASCA defines "escapes from a secure DOC facility" as escapes that originate from within a state-run correctional facility (usually a prison) that has a

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secure perimeter, such as fences, walls, and/or guard towers (see also "leaving secure custody", U.S. Sentencing Commission, 2008, 4).

2. The ASCA's second type of incident "escapes from a secure non-DOC facility" is the same as the first, but occurs when a state inmate escapes form a facility that is operated by an agency contracted by that state's department of corrections, such as a privately-operated facility or a county jail.
3. "Escapes from outside a secure DOC facility" occur when an inmate escapes from under the supervision of a staff member while outside of the facility, such as during a work detail, medical or court visit, or transportation (see also "leaving law enforcement custody", U.S. Sentencing Commission, 2008, 4).
4. Lastly, "unauthorized absences from a facility without a secure perimeter" include both escapes from within a facility without perimeter fences, which are often called "walkaways" (see also "leaving nonsecure custody", U.S. Sentencing Commission, 2008, 4), as well as incidents where an inmate escapes from outside of the facility but is not under supervision at the time of the escape, such as during work-release or an authorized furlough. This latter incident is often referred to as a "failure to return", "absconding", or an "AWOL" (see also "failing to return to custody", U.S. Sentencing Commission, 2008, 4).

Based on these definitional shortcomings, the most appropriate way to study escapes would be to develop a consistent definition of escape and collect data detailed enough to decide whether an incident qualifies as an escape. This would ensure that each incident meets predetermined inclusion criteria. One example of this approach comes from the *Correctional Incident Database, 2009* (CID; Mellow & Freilich, 2012), which developed its standardized definition of escape through an extensive review of the literature. The CID's

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general definition of escape is "A loss of correctional control over an inmate in custody". Consequently, attempted escapes are not included in this database.

To distinguish between attempted and completed escapes, the CID follows some of the ASCA's rationale. An escape from a facility has not occurred until "the inmate breaches the last line (barrier) of security…even if the inmate is apprehended on prison grounds" (ASCA, 2012, 12). For escapes that occur outside the facility, however, the ASCA states that "the staff member responsible for supervision of the inmate must lose sight and sound of the inmate" (ASCA, 2012, 14). The CID's definition differs from this definition by using the term "loss of control". In other words, if an inmate breaks free from a correctional officer and runs through a public area, the officer no longer has control over the inmate whether the inmate is within the officer's sight. In addition, the CID includes several incident-level characteristics that can be used to distinguish between different types of escape, such as if the inmate is in secure custody at the time of the incident or whether the escape occurs inside or outside the facility. Thus, while the scope of escapes analyzed in the CID is broad, its definition of escape is internally consistent.

Previous Escape Research

It is important to recognize the dearth of current research on escapes from custody. This existing research is extremely outdated, methodologically limited, and too narrowly focused (Sturrock et al., 1991). The majority of the escape literature is based on descriptive analyses of escapes from a single facility or a single jurisdiction. Very few studies have employed any type of inferential analyses. It is also concerning that most existing research has only examined escapes from state and federal prisons, ignoring escapes from jails and other local detention facilities. This last point is particularly concerning considering the important role jails play in our correctional systems. Some research also suggests that escapes from jails account for almost 50 percent of all escapes (see Culp & Bracco, 2005, 2).

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The most current and seminal academic research on escapes from custody was conducted by Culp in 2005. Culp analyzed several sources of national data and discussed the overall trends of escapes. He then conducted a more detailed analysis on a small sample of more serious escapes using media reports. Culp's research was so influential that it was cited in several important federal cases, particularly the estimates he produced of how often escapes lead to violent outcomes (see U.S. v. Chambers, 2007; U.S. v. Templeton, 2008). However, even this seminal study was limited in scope: It ignored walkaways, failures to return (AWOL), escapes that occurred during transport, and escapes from jails. Culp also used relatively outdated data from 1998 and 1999.

The U.S. Sentencing Commission conducted a more recent analysis of escapes (U.S. Sentencing Commission, 2008). However, this analysis was also limited: It included only 414 federal escape cases from the years 2006 and 2007, which are not representative of the majority of escapes that occur in local and state facilities. In addition, many of the findings from the U.S. Sentencing Commission's analyses lead to different conclusions than the findings from Culp's (2005) research. For example, Culp's research indicated that only 8 percent of escapes resulted in violence, compared with an estimate of 16 percent in the U.S. Sentencing Commission's study.

Generally, previous researchers have been interested in answering two important questions about escape: "who escapes?" and "from where?" In other words, these studies have tried to determine which inmates are more likely to escape and which facilities are more prone to inmates escaping. In recent years, however, another question has emerged in the literature: Under what circumstances do escapes occur? This question is related to opportunity-structured theoretical frameworks of criminal behavior, such as routine activities and situational crime prevention. The distinction between these three overall questions leads to the conclusion that each escape from custody includes inmate-level,

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incident-level, and facility-level variables. Each set of these variables is nested within another in a hierarchical structure such that one facility may have multiple incidents, and one incident may involve several escapees (Figure 2).

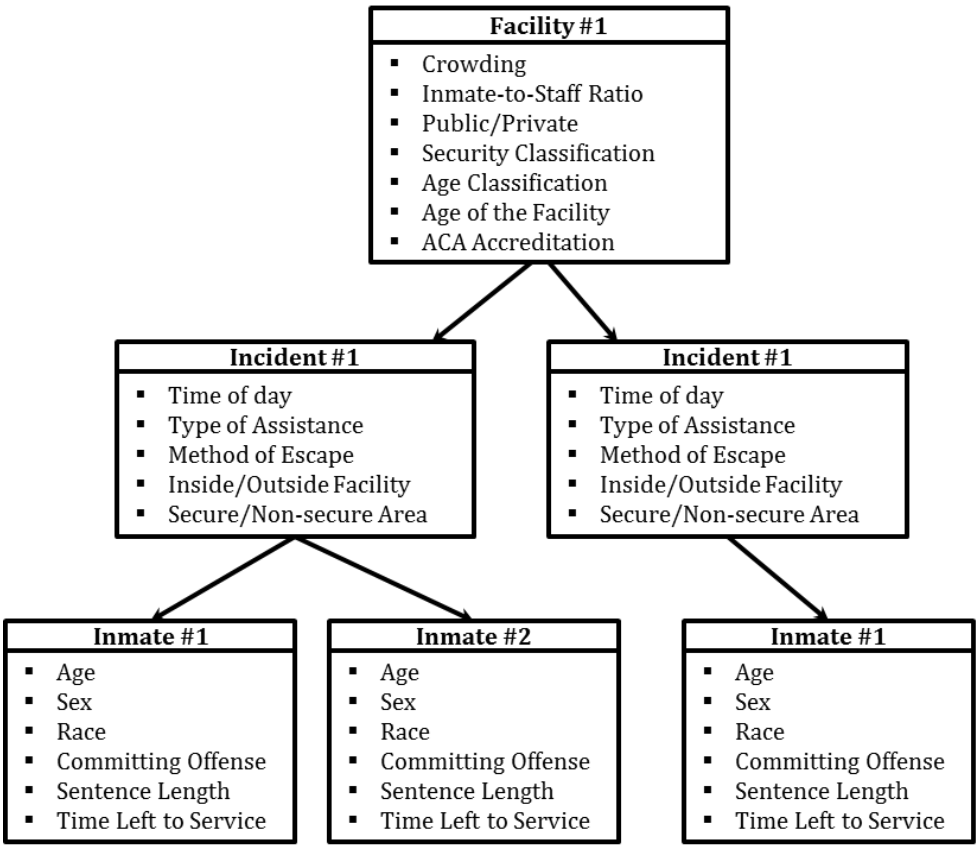

Figure 2: *Hierarchical Structure of Escape Variables*

To date, this structure has been ignored in escape research and no single study has addressed these three levels of analysis. Thus, the current dissertation will address this research gap by examining facility-, incident-, and inmate-level factors associated with escapes from custody and violent escape outcomes. This will provide a significant contribution to the discourse on escapes by providing the most comprehensive, accurate, and updated analysis of this correctional incident.

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Who Escapes?

Much of the available scholarly work on escapes has examined the degree to which inmate characteristics are associated with escape behavior. These studies have focused on three groups of individual-level variables: 1) demographic characteristics; 2) criminal histories; and 3) dynamic factors (e.g., Anson & Hartnett, 1983; Scott et al., 1977; Shaffer et al., 1985; Murphy, 1984; Cowles, 1981). Additionally, some researchers have studied escapee personality traits based on the Minnesota, Multiphasic Personality Inventory (MMPI) (Panton, 1979; Scott et al., 1977; Shaffer et al., 1985; White, 1979). The MMPI, in fact, has an escape scale, "Ec", specifically designed to differentiate between escapee and non-escapee personalities (Beall & Panton, 1956). Other research has examined specific background factors, such as being raised in an abusive family, having longer juvenile records, having serious substance abuse problems, having longer criminal records, having more prison misconducts, and having little support from family, the community, and prison staff (Sandhu, 1996).

Demographic Characteristics

In general, studies have demonstrated that age and gender are strong predictors of escape behavior. Men typically escape at higher rates than females (Chard-Wierschem, 1995; Lyons, 2011), although many studies have analyzed samples of either just men (Lyons, 2011; Panton, 1979; Sandhu, 2009) or women (Scott et al., 1977). Culp's (2005) analyses using data from 1998, however, found no statistically significance difference between the escape rates of men and women (see also Culp & Bracco, 2005).

As for age, most research suggests that youthfulness is the best predictor of escape behavior (Anson & Hartnett, 1983; Basu, 1983; Culp, 2005; Guenther, 1983; Holt, 1974; Kentucky Bureau of Corrections, 1979; Lyons, 2011; Morgan, 1967; Scott et al., 1977; Stone, 1975; Virginia Department of Corrections, 1978; Wharry, 1972). In other words, younger

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inmates are more likely to escape from custody than older inmates. Definitions of "younger", though, have varied across studies. Most research has indicated that the average escapee is under 30 years old (Sturrock et al., 1991), although an older study found that escapees are under 25 (Morgan, 1967) and newer research puts their age at 34 (Culp, 2005). Studies have also found age to be a significant predictor of multiple types of escapes, including failure to returns/AWOLS (Chard-Wierschem, 1995) and walkaways from minimum security facilities (Johnson & Motiuk, 1992). Though rare, some research has also shown that escapees are actually older than inmates who do not escape (Cowles1981). Still, the majority of the findings regarding age and gender parallel the findings of the general research on criminal behavior: Young men tend to be a high risk group for rule-violating behavior.

Race has also been an important predictor of escape behavior in the literature, with the majority of older studies finding that white inmates being more likely to escape from prison than black inmates (Cowles, 1981; Holt, 1974; Morgan, 1967; Murphy, 1984; Sandhu, 1996; Stone, 1975; Virginia Department of Corrections, 1978, 1980, 1982).) One study found that 75 percent of escapees were white, while only 40 percent of non-escapees were white (Murphy, 1984; see also Holt, 1974). One author explored the differences between white and black escapees to see what variables were more strongly associated with race. He found that the type of conviction was the most important variable for black inmates, while prior escape record was most important for white inmates (Cowles, 1981). Another individual discussed the racial disparity in escape behavior in terms of the African American history of powerlessness and submissiveness to authority (Haisted, 1985). However, more current research seems to indicate that race is no longer a significant predictor of escape behavior (Culp, 2005), including for failures to return (Chard-Wierschem, 1995) and walkaways (Johnson & Motiuk, 1992).

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Marital status has also been tested as a possible predictor of escape behavior. While some studies have found that marital status is not significantly associated with the likelihood that an inmate will escape (Johnson & Motiuk, 1992; Kentucky Bureau of Corrections, 1979; Shaffer et al., 1985), other research is mixed. For example some have found that escapees are more likely to be married (Cowles, 1981; see also Stone, 1975; Virginia Department of Corrections, 1978), while others found that being single was positively associated with escape behavior (Chard-Wierschem, 1995; Morgan, 1967).

Criminal History

An important group of variables cited in escape research are related to inmates' histories of criminal activity and criminal justice involvement. A sizeable majority of existing research has shown that inmates convicted of property offenses are more likely to escape than inmates convicted of other offenses, such as violent crimes (Basu, 1983; Cowles, 1981; Holt, 1974; Kentucky Bureau of Corrections, 1979; Murphy, 1984; Stone, 1975; Thornton & Speirs, 1985; Verlag, 1978; and Virginia Department of Corrections, 1978, 1980; see also Lyons, 2011). Although outdated, some researchers have estimated that 20 - 26 percent more escapees were charged with a property crime compared to a comparison group of non-escapees (Holt, 1974; Murphy, 1984). Consistent with this research, Culp (2005) suggested that rates of prison escape might be going down as a result of the decrease in the proportion of property offenders being incarcerated. It is also possible that property crimes require more "skill" that is relevant to escaping from custody than violent crimes (e.g., gaining entry to a house or building), and therefore inmates convicted of property crimes are better equipped to escape from custody than other offenders. Still, as some authors have pointed out, "there seems to not be a clear explanation in the literature as to why this relationship [between property offenders and escape behavior] persists" (Sturrock et al., 1991, 4).

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Like escapees' conviction offense, some authors have examined the sentence being served to determine if that is associated with escape behavior. This research has generally examined two important components of the current sentence. First, researchers have investigated the role of the inmates' sentence length under the assumption that inmates with longer sentences should have more incentive to escape (Sturrock et al., 1991). The results of these studies, however, are mixed. Some have shown that escapees were serving longer sentences than non-escapees (Scott et al., 1977; Stone, 1975; Virginia Department of Corrections, 1978), while others have found that escapees often serve short sentences of five years or less (Morgan, 1967). Still others have reported that sentence length is not a useful predictor of whether an inmate will escape (Holt, 1974).

The second relevant component of the current sentence is the amount of the sentence served before the escape occurs. Most research demonstrates a pattern where inmates are more likely to escape after serving only a small portion of their sentence. For example, one study found that half of all escapees had served less than one year of their sentence before they escaped (New York Department of Correctional Services, 1986). However, this study failed to distinguish between inmates sentenced to jail time and inmates sentenced to prison time, which can greatly affect the overall length of the sentence. Still, several other studies have shown that a majority of escapes occur shortly after inmates begin serving their sentence (Hilbrand, 1969; Kentucky Bureau of Corrections, 1979; McNeil, 1978). Other research suggests that inmates are who have served less than a quarter (Wharry, 1972) or less than half (Morgan, 1967) of their sentence are more likely to escape than other inmates. Overall, these studies imply "that some offenders will escape as soon as possible in order to avoid a lengthy period of confinement (Sturrock et al., 1991, 7). Again, however, the findings from more current research are less clear. In a sample of escapees from 2001, only 30 percent had an original sentence of four

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years or less, while almost 60 percent of the sample had less than four years of their sentence remaining (Culp & Bracco, 2005).

Another notable finding is that escapees have often escaped in the past (Cowles, 1981; Hilbrand, 1969; Holt, 1974; Murphy, 1984; Stone, 1975, Sandhu, 1996; Thornton & Speirs, 1985; Virginia Department of Corrections, 1978; and Wharry, 1972). Escapees are approximately twice as likely to have a history of escape as a comparison group of non-escapees (Holt, 1974) and three times more likely to have escaped from a juvenile facility than non-escapees (Murphy, 1984). Similarly, escapees have generally been incarcerated more frequently (Basu, 1983; Delisi, Trulson, Marquart, Drury, and Kosloski, 2011; Holt, 1974; Kentucky Bureau of Corrections, 1979; Scott et al., 1977; Wharry, 1972), had longer criminal histories (Murphy, 1984; Shaffer et al., 1985; Walters & Crawford, 2013), had more parole violations (Basu, 1983; Holt, 1974; Murphy, 1984; McNeil 1978), and had more institutional violations (Murphy 1984; Stone, 1975) than non-escapees. Escapees were also more likely to have served time as juveniles than non-escapees (Murphy, 1984; Virginia Department of Corrections, 1978). These findings suggest that inmates who escape from custody tend to have been more frequently involved in the criminal justice system for longer periods of time than inmates who never escape.

Dynamic Factors

While most prior studies have examined static factors associated with escape, such as demographic characteristics and inmates' criminal histories, dynamic factors are also important predictors of escape behavior (Sturrock et al., 1991). One such factor that is related to escape behavior is family problems (Basu, 1983; Duncan & Ellis, 1973; Hilbrand, 1969; Kentucky Bureau of Corrections, 1979; McNeil, 1977; Virginia Department of Corrections, 1975; Wharry, 1972). For example, inmates who had problems with their significant others (Basu, 1983; Hilbrand , 1969; McNeil, 1977; Sandhu, 1996) and those who

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did not receive mail or personal visits from family members (Hilbrand, 1979; McNeil, 1977) were more likely to escape than other inmates. Administrative sanctions related to the family have also been shown to increase the likelihood of escapes (Sturrock et al., 1991). For instance, inmates who were not allowed to visit a sick family member or attend the funeral of a loved one were more likely to engage in escape behavior (Duncan & Ellis, 1973). In addition, inmates who were placed in correctional facilities far away from their home were more likely to escape than other inmates (Kentucky Bureau of Corrections, 1979; Loving, Stockwell, & Dobbins, 1959). These results coincide with research that shows that increased family contact can reduce several types of institutional misconduct (Cochran, 2012; Siennick, Mears, & Bales, 2012).

Other dynamic factors identified in prior research are called "institutional crisis situations" which are "situations that motivate the offender to escape" (Sturrock et al., 1991, 10). These situations often involve conflict with guards or other inmates, such as sexual and physical assaults. These events have been found to be a catalyst for escape behavior (Hilbrand, 1969; Kentucky Bureau of Corrections, 1979; Loving et al., 1959; McNeil, 1978; Murphy, 1984; Sandhu, 1996; Wharry, 1972). Some studies propose that the threat of assault can result from the escapee being financially indebted to another inmate (Duncan & Ellis, 1973; McNeil, 1978). Because the threat of physical or sexual violence can contribute to inmates' willingness to escape, there have been several legal commentaries on the use of the necessity or duress defenses for inmates facing escape charges (Fletcher, 1979; Jeffries, 1979; Lesser, 1972). In addition to problems with other inmates, escapees have also reported having issues with correctional staff, which may be another catalyst of escapes (Duncan & Ellis, 1973; Kentucky Bureau of Corrections, 1979; McNeil, 1977).

Other dynamic factors are related to the issue of administrative sanctions or pending further involvement in the justice system. For instance, parole plays an important

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role in escape behavior. Inmates who were denied parole (Kentucky Bureau of Corrections, 1979; Virginia Department of Corrections, 1980), were ineligible for parole (Virginia Department of Corrections, 1980), or had to wait a long period of time for a parole hearing (Hilbrand, 1969; Holt, 1974) were more likely to escape than other inmates (see also Duncan & Ellis, 1973; McNeil, 1977; Wharry, 1972). Similarly, inmates who had been transferred to a higher security facility—a type of administrative sanction—were more likely to escape than inmates who were not transferred at all or inmates who were transferred to another facility with the same security rating (Murphy, 1984; Sandhu, 1996; Wharry, 1972). Lastly, having outstanding charges for other crimes is associated with escape behavior (Virginia Department of Corrections, 1975; Wilson, 1968; Wharry, 1972). Thus, inmates may escape to avoid more time in prison or jail (Sturrock et al., 1991).

From Where?

While most of the previous escape research has focused on determining which inmates are most likely to escape, some studies have also examined the degree to which characteristics of the facility have an effect on the number of escapes a facility experiences. Typically, studies of how facility-level factors impact any type of inmate misconduct include measures of institutional security level, overcrowding, guard-inmate ratio, ratio of young to old inmates, the proportion of racial and ethnic groups among the inmate populations, etc. Most of these studies, however, have focused on other correctional incidents, such as assaults and riots, and very few have examined how the facility might influence the number of escapes. Studies examining the relationship between prison-level factors and escapes are plagued by the same limitations as escape research in general: They are outdated, narrow in scope, and methodologically weak (relying mostly on descriptive or bivariate analyses).

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One facility-level indicator that is often included in research on institutional misconduct is overcrowding. Though some previous studies have found that overcrowding is associated with increases in misbehaviors, such as disciplinary reports (Megargee, 1977), infractions (Ruback & Carr, 1984; Wooldredege, Griffin, & Pratt, 2001) and assaults (Gaes & McGuire, 1985; Nacci, Teitelbaum, & Prather, 1977), the true impact of crowding on violent and non-violent misbehavior is not well understand (Franklin, Franklin, & Pratt, 2006). Similarly, the relationship between overcrowding and prison escapes is unclear. Jan (1980) reported a moderate, negative relationship between the escape rate and crowding in an adult male prison (Pearson's r = -.42). Conversely, Anson and Hartnett (1983) reported such a low correlation between the frequency of escapes and crowding that they concluded "overcrowding exhibits a surprisingly low relationship to institutional escapes and is an altogether unimportant predictor" (40).

Prison privatization is another facility-level characteristic that can impact inmate behavior. In regards to other types of institutional misconduct, some researchers have found that private correctional facilities have higher levels of total misconduct and violent misconduct than comparable public facilities (Camp, Gaes, Langan, & Saylor, 2003). Critics of prison privatization have similarly argued that "private prisons are more escape prone than public prisons" (Culp, 2001, 196). These sentiments were recently echoed in the news when a group of inmates convicted of murder broke out of a privately operated facility in Arizona. After the breakout, one journalist wrote that a "lax culture" and a "culture of complacency" where what "led to indifference about behavior and indicators that would have caught the attention of administrators at state-run facilities" (Hensley, August 20, 2010).

One study of the effect of prison privatization on escape comes from Culp (2001), whose data from 1997 and 1998 indicate that private prisons actually had lower escape

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rates than public prisons. In this study, less than four percent of escapes occurred in a private prison, even though they confined a little more than five percent of the inmate population. In addition, publicly operated facilities were more likely to experience multiple escapes compared to private prisons (Culp, 2001). However, Culp's (2001) study was limited in scope and rigor because it relied on a descriptive case study of 88 serious prison escapes that occurred in 1997 and 1998. Another descriptive study from around the same time period, however, found that a medium security public prison in Louisiana had zero escape between 1991 and 1996, while two comparable privately operated prisons experienced three and five escapes (Archambeault & Deis, 1998). Again, this limited and outdated research makes it difficult to determine the real direction and strength of the relationship between the type of management (i.e., public or private) and escapes.

Anson and Hartnett (1983) performed the most thorough examination into the effects of facility-level characteristics on escapes. They argued that prison escapes should be seen as a measure of prison effectiveness under incapacitation theory, such that "the greater number of escapes, the less effective the prison is in realizing this penological ideal" (Anson & Hartnett, 1983, 38). These authors analyzed correlations between several structural factors and the number of escapes in all of the adult male prison in Georgia in 1980 (n=17). They included the following variables in their analysis: "age" (of the prison), "youthfulness" (average age of the inmate population), "resources" (annual budget per inmate), "size" (design capacity), "overcrowding" (design capacity divided by the average inmate population), "education" (average grade level of inmates), "supervision" (medium vs. close security), and the ratio of "treatment", "administrative", and "custodial" staff to inmates. The authors found that all ten of these structural predictors explained about 78 percent of the total variance in levels of prison escape. In addition, their findings identified four variables that alone account for 70 percent of the variance in escape levels: The

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average age of the inmate population, ratio of treatment staff, level of supervision, and annual resources per inmate were all negatively related to the number of escapes at each facility (Anson & Hartnett, 1983). Jan's (1980) findings also indicated that facilities with youthful populations were more likely to experience escapes than adult facilities.

Some of available literature has examined physical aspects of the facility and how these can prevent escapes. One empirical investigation found that camera surveillance had no discernible effect on the location of escapes (Allard, Wortley & Stewart, 2008). Most of the information in this field, however, can be found in trade publications designed for correctional administrators. These types of publications present information on the newest correctional technologies, some of which are designed to reduce escapes. For example, one important facility characteristic is perimeter security. Perimeter security includes walls, fences, gates, CCTV, and guard towers (ASCA, 2012; McManus & Conner, 1994). Effective perimeter security can act as both a "psychological deterrence" and a "physical barrier" to escapes (McManus & Conner, 1994, 142). Recent innovations in perimeter security include fences that arch inwards or outwards and are woven so small at the top that fingers cannot fit between the gaps (Mason, 2005). Other innovations such as video monitoring, electronic sensors, satellite monitoring, and inmate locators systems have also been used at correctional facilities to prevent escapes (Mason, 2005; McManus & Conner, 1994; Ochoa, 2002). In some European countries, governments have even spent millions of dollars to install steel mesh nets—called chopper stoppers—over exercise yards to stop helicopters from landing in a facility and breaking inmates out of custody (Clark, 2009).

Under What Circumstances?

While most previous research has examined inmate-level, and to a lesser extent facility-level, characteristics of escapes, incident-level variables have also emerged in the literature as important indicators of when an escape is likely to occur. Incident-level

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variables can be defined as situational and/or dynamic factors that vary separately from the inmate or the facility. For example, a high-risk inmate might be held in a maximum security prison, but escape while in transport to an offsite medical facility. This is different than escaping from inside a maximum security facility, which would potentially be more difficult because it would involve getting past several secure barriers. Other examples of incident-level variables include whether an escape occurred from a secure or non-secure area, if the inmate(s) received help escaping from custody, the number of inmates involved in an escape incident, the time of day the incident occurred, and the method of the escape.

The literature on whether an escape occurs inside or outside of the facility is generally limited to definitional issues. While some have distinguished between escapes from inside and escapes from outside the facility (ASCA, 2012; U.S. Sentencing Commission, 2008), much less research has been conducted on how often these two types of incidents occur. Culp and Bracco (2005) found that approximately 14 percent of the escapes reported by the media in 2001 occurred while the inmate was being transported between facilities. The U.S. Sentencing Commission (2008) estimated this number to be only three percent in their sample of 2006 and 2007 federal cases. However, the U.S. Sentencing Commission does not distinguish between completed escapes and attempted escapes, making comparisons between these two studies difficult.

Another important incident-level variable that emerges from the literature is whether an escape occurred from a secure area. While this is not always clear in previous research, it is important to note that both secure and non-secure areas can be found inside or outside a facility. For example, secure areas typically have some type of barrier that the escapee must overcome. Inmates escaping from inside a facility, for instance, must overcome perimeter security (e.g., fence, gate, walls, locked doors, etc.) in order for an escape to be from a secure are (see ASCA, 2012; U.S. Sentencing Commission, 2008).

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Escapes from within a facility can also be from non-secure areas if escapees can leave without overcoming any barriers, such as when inmates "walk away" from minimum-security facilities or work-release centers (U.S. Sentencing Commission, 2008). For incidents that occur outside a facility, escapees may be in a non-secure area if they are on an authorized leave of absence, such as on a furlough or work-release. In the literature, these types of escapes fit in the category of AWOLs, absconding, or failure to returns. The escape occurs in a secure area if the inmate is out of the facility while being supervised by a staff member, such as during a custodial work detail, a medical or court visit, or transportation.

In much of the available literature, the distinction between secure/non-secure areas and inside/outside the facility is not clear. The ASCA's (2012) definition of "unauthorized absences from a facility without a secure perimeter" encompasses escapes from inside and outside the facility. Culp and Bracco, mirroring this definition, reported that more than one-quarter of the escapes in their sample absconded from outside the secure area of the prison or from a non-secure area within the facility. The U.S. Sentencing Commission (2008) distinguished between these two types of incidents and reported that nearly 29 percent of the cases in its sample failed to return to prison after being temporarily released, while more than 42 percent of the cases in its sample walked away from facilities with no physical barriers. Other estimates have indicated that escapes from low security prisons, which often fit the criteria of an escape from a non-secure area, account for approximately 89 percent of all prison escapes (Culp, 2005).

The fact that most escapes occur from lower security institutions and other non-secure setting has been universally and historically supported. This finding has been attributed to the fact that less secure settings provide inmates with more opportunity to escape (Sturrock et al., 1991). Sandhu (1996) also reported that opportunity was an

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important factor for 83 percent of inmates in his study that escaped from lower security facilities. Findings from other studies indicate that inmates who are on work assignments have the best opportunity to escape (Duncan & Ellis, 1973; Holt, 1974; Kentucky Bureau of Corrections, 1979; Virginia Department of Corrections, 1978).

Escaping from a non-secure area, whether it's from inside or outside the facility, is opportunistic. However, not all methods of escape can be solely attributed to convenience or opportunity. Some escapes involve more planning, such as cutting through, climbing over, tunneling under, or otherwise defeating the perimeter of a facility. The frequency of these types of escape methods has been estimated to occur in anywhere from one-quarter (Culp & Bracco, 2005) to nearly 45 percent (Culp, 2005) of escape incidents. Culp (2005) also discussed a method in which escapees forged documentation, such as swapping their identification with another inmate or creating phony release papers, to trick correctional staff into releasing them before they were supposed to be released. Even though the method of escape is a useful incident-level factor that can provide insight into the escape process, research in this area is particularly limited. In the two studies identified that specifically examined the escape method, the sample sizes consisted of only 70 (Culp & Bracco, 2005) and 72 (Culp, 2005) escapees.

There are several temporal relationships between incident-level variables and escapes. Several studies have demonstrated that escapes occur more frequently in warmer months, such as in spring or summer (Dahlem, 1974; McNeil, 1978; Murphy, 1984; Virginia Department of Corrections, 1978; 1980; Hilbrand, 1969; Kentucky Bureau of Corrections, 19790). Moreover, it has been shown that escapes are more likely to occur on weekend days than during the week (Dalhem, 1974; Hilbrand, 1969; Murphy, 1984). Month and day of the week do not appear to be significant predictors of escape in more recent research (Culp & Bracco, 2005), but Culp and Bracco also found that escapes were most likely to occur in

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either the morning (6am-12pm) or evening (6pm- 12am) hours, with 70 percent of the escapes in their sample taking place during these two time periods.

One incident-level variable that has not garnered much attention in the literature is the type of assistance inmates receive during the escape. Type of assistance can be placed into two categories: inside assistance and outside assistance. Inside assistance occurs when an inmate receives help from a corrections staff member, such as an officer or a civilian employee. Culp and Bracco (2005) claim that this is the most "egregious breakdown" of staff duties (26). On occasion, inmates also help one another escape, though the average escape incident only involves 1.3 inmates (Culp & Bracco, 2005), and 92 percent of all incidents involve either one or two inmates (Culp, 2005). These statistics further support the need to distinguish between incident-level and inmate-level variables, since multiple inmates may be involved in a single incident.

As compared to inside assistance, outside assistance usually involves a friend or family member of one of the escapees helping the inmate(s) escape from the facility and/or providing them with resources or shelter to avoid recapture. The extent of outside assistance ranges from driving the escapee(s) away from the facility, to hiding the escapee(s) or providing them with clothes or money, to breaking through perimeter fences with stolen vehicles to break them out of custody (Culp, 2005; Culp & Bracco, 2005; Sandhu, 1996). Although the research on this particular phenomenon is limited, outside assistance appears to be rare.

Planning is another incident-level variable that emerges from the literature. Whether an incident was planned by the escapee(s) can usually be inferred from other factors, such as if the escapee received outside or inside assistance. Other indicators of planning stem from the method of escape, including tunneling through or under prison walls and tricking correctional staff with disguises or forged documents (Culp, 2005; Culp &

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Bracco, 2005; Sandhu, 1996). Unfortunately, inferring whether an escape was planned is subjective. Estimates of how many escapes were planned range from 40 percent (Sandhu, 1996) for any planning, to 3 percent (Culp & Bracco, 2005) or 8 percent (Culp, 2005) for more sophisticated planning. Still, all research indicates that escapes generally involve very simplistic plans, if any at all (Culp, 2005; Culp & Bracco, 2005; Centre for Research, Evaluation, and Social Assessment, 1996; Duncan & Ellis, 1973).

Escape Violence

One of the most significant—and yet understudied—aspects of escaping from custody is the real and alleged violence associated with this behavior. Prison escapes are often perceived as inherently violent, even though there is little definitive research on the subject. One potential reason for this perception stems from depictions of escapes in the media. From fictional television shows and movies, to documentary-style television programs, entertainment media often portray prison escapes as sensational, riveting components of a story. News reporters, too, seem to focus on escapes that are violent, well-planned, and involving serious criminals who commit additional crime while in the community. These portrayals of prison escapes by the media have promoted a particular framework and "form[ed] a familiar storyline in popular culture" by which the public views escapes (Culp, 2005, 281). The way news media report on prison escapes has also been shown to increase the public's fear of crime (Fisher, Allan, & Allan, 2004).

Sentencing Enhancements under the Armed Career Criminal Act

One the consequences of the perception that escapes are inherently violent can be found in a long series of federal court decisions regarding sentencing enhancements for individuals convicted under the 1984 Armed Career Criminal Act (ACCA), 18 U.S.C. 924(e). Under the ACCA, a felon convicted of unlawful possession of a firearm will receive a minimum of 15-years in prison if he or she has three prior violent felony convictions or

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serious drug convictions from a state or federal court. According to the ACCA, a "violent crime" is one that: 1) has as an element the use, attempted use, or threatened use of physical force against the person of another; or 2) is burglary, arson, or extortion, involves use of explosives, or *otherwise involves conduct that presents a serious potential risk of physical injury to another*. (18 U.S.C.S. § 924(e)(2)(B), emphasis added). Under this second criterion, escapes have been defined as "violent crimes" because of the following rationale:

> [E]very escape scenario is a powder keg, which may or may not explode into violence and result in physical injury to someone at any given time, but which always has the serious potential to do so…indeed, even in a case where a defendant escapes from a jail by stealth and injures no one in the process, there is still a serious potential risk that injury will result when officers find the defendant and attempt to place him in custody (*U.S. v. Gosling, 1994, 11492).*

Since the decision of U.S. v. Gosling in the early 1990s, several cases involving ACCA sentencing enhancements for escapees have made it to federal appellate courts (e.g., *Chambers v. U.S.*, 2009; *U.S. v. Adkins,* 1999; *U.S. v. Bryant*, 2002; *U.S. v. Ford,* 2009; *U.S v. Gay,* 2001; *U.S. v. Gibbs, 2010; U.S. v. Golden*, 2006; *U.S v. Harris,* 1999; *U.S v. Jackson,* 2002; *U.S v. Luster,* 2002; *U.S v. Mitchell,* 1997; *U.S v. Nation,* 2001; *U.S v. Ruiz,* 1999; *U.S v. Turner,* 2002; *U.S* v. Wardrick,2003; *U.S v. Winn,* 2004). While most of these decisions reaffirmed the notion that all types of escapes from custody should be counted as a prior violent felony, recent cases have established new precedents. Before *Chambers v. U.S.* (2009), the act of failing to report to a correctional facility to begin serving a sentence was also considered a violent crime. However, in *Chambers,* the U.S. Supreme Court decided these types of incidents are distinct from escapes and did not involve conduct that presented any serious potential risk.

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The Supreme Court's decision to reclassify failures to report as non-violent crimes began a process of reexamining other types of escape incidents. In light of the *Chambers* decision, the Sixth Circuit Court decided in *U.S. v. Ford* (2009), and again in *U.S. v. Gibbs* (2010), that escapes from non-secure settings (i.e., "walkaways") are categorically different than escapes from secure settings. In the *Ford* decision, the Court said that walkaways fall somewhere in between failures to report and escape where an inmate breaks out of a maximum-security prison, in terms of the risk of injury to others. Thus, walkaways do not present enough risk of injury to be categorized as crimes of violence. It is important to note, though, that the U.S. Supreme Court has yet to grant certiorari to a case involving walkaways. Moreover, any escape that is considered to be more serious than a walkaway, such as scaling a fence, is still considered to be a violent crime (see *U.S. v. Stout,* 2013). This is also problematic given the lack of consistent definitions of "walkaways" and other types of "escapes", the failure of many to distinguish between attempted and completed escapes, and the serious limitations to the current understanding of escape violence (described below).

Types and Prevalence of Violence

The decisions in *Chambers v. U.S.* (2009), *U.S. v. Ford* (2009) and *U.S. v. Gibbs* (2010) to reexamine escape types and re-categorize walkaways as non-violent were largely based on the findings from two studies: The U.S. Sentencing Commission's (2007) report and Culp's (2005) journal article. However, both of these publications were limited in their scope and rigor. The sample used in the U.S. Sentencing Commission's report was based on federal cases in which the individual was sentenced using the federal sentencing guideline §2P1.1. This guideline, however, includes completed escapes, attempted escapes, and acts of instigating or assisting escape. It is unclear if the U.S. Sentencing Commission included all of these types of cases in their sample or somehow limited it to completed escapes. Culp's

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(2005) analysis of violence was based on only 88 incidents of escape reported in the media in 1997 and 1998. Thus, Culp's estimates were over a decade old at the time of the Courts' decisions, and were based on a small sample of incidents. Additionally, Culp's analysis did not include "walkaways from work camps, prerelease centers, and cases not involving a breach of prison security" (284), even though these types of escapes were of chief concern to the courts. Finally, given that Culp excluded less serious types of escapes and that his sample was limited to incidents reported in print news, it is likely that he overestimated how much violence actually occurs during escapes.

Since the Courts have said that violence can occur "at any given time" (*U.S. v. Gosling,* 1994), it is important to distinguish between violence at different points across the spectrum of the escape. Based on prior literature, violence can occur during three stages of the escape incident: the breakout, post breakout, and recapture. The breakout refers to the moment in which the escapee overcomes whatever barrier stands in the way of freedom. Thus, violence might occur at this stage if an inmate overpowers a staff member to facilitate the escape. The amount of violence that occurs during the breakout period appears to be low. Culp (2005) reported that 8.3 percent of the incidents in his sample involved violence against prison staff. Culp and Bracco (2005) found even fewer instances of violence and reported that only 4.3 percent of the escapees in their sample overpowered staff members to escape (see also Sandhu, 1996). Culp and Bracco's findings also indicate that escapes from transport are more likely to involve violence against staff than other types of escape incidents. Lillis' (1993) findings were the most astounding: Only five correctional staff members were injured in 822 escapes.

The U.S. Sentencing Commission (2008) further identified three indicators of violence that were occasionally present during the breakout. Force or the threat of force occurred in 2.7 percent of all escapes, but were much more likely in escapes from secure

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custody (13 percent) versus escapes from non-secure custody (0.3 percent). The presence of a dangerous weapon during the breakout was also much more prevalent in escapes from secure custody (22.1 percent) than escapes from non-secure custody (0.3 percent). Finally, bodily injury was present in 10.4 percent of the escapes from secure custody compared to only 0.3 percent of the escapes from non-secure custody. The U.S. Sentencing Commission further used these indicators of violence to determine the degree to which violence varied by type of escape. They found that leaving secure custody (escapes from medium or maximum security facilities) and leaving law enforcement custody (escapes during transport) almost exclusively accounted for all of the violence compared to leaving non-secure custody (walkaways), failing to report, and failing to return (U.S. Sentencing Commission, 2008).

Violence in the post-breakout period typically occurs when escapees commit additional violent crimes in the communities into which they have escaped. Some research has found that crimes committed in the community by escapees were typically nonviolent, such as property or traffic offenses (Sundin, 1971). Lillis (1993) found that less than one percent of all escapes lead to injuries of private citizens. Culp (2005), however, found that seven of the 135 escapees in his sample committed violent crimes while out in the community. However, because he excluded walkaways from this sample, these numbers are likely inflated. This is evidenced by a study which found that less than one percent of inmates who walked away from a prison committed a serious crime in the area outside the correctional institution (Murphy, 1984; see also Carlson, 1990). Sandhu (1996) also found that even of escapees convicted of murder, only 11 percent committed additional violent crimes during the post breakout period.

According to the courts, escapes also create the potential for violence when they are recaptured by correctional staff or law enforcement officers (*U.S. v. Gosling,* 1994). The

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recapture period of the escape process has been the least studied. Most of the research that has examined injuries to correctional staff (Culp, 2005; Culp & Bracco, 2005; Lillis, 2993; Sandhu, 1996) is unclear about if staff members were injured during the breakout or recapture period. In response to this lack of information, the U.S. Sentencing Commission (2008) specifically investigated the frequency of violence that occurred at the time of the escapees' apprehension. They found that force or the threat of force was present in a little over one percent of all recaptures, dangerous weapons were present in around three percent of all recaptures, and injures occurred in less than one percent of all recaptures. These violent indicators were four to ten times more likely to be present during the recaptures of inmates who escaped from secure custody than when inmates escaped from non-secure custody, with virtually no violence occurring during the recapture of inmates accused of failing to report or failing to return.

Chapter Conclusion

The literature reviewed in this chapter had several implications for the current dissertation. First, there has been very little research on escapes from custody in the past few decades. As such, there is a need to analyze current data and examine the degree to which findings from these analyses confirm or contradict commonly-held "truths" of prior research. The need for relevant, updated research on escapes from custody is accompanied by the need for understanding the prevalence and scope of escape violence. As discussed in the previous section, decisions in recent years by U.S. circuit courts and the Supreme Court indicate a clear need for a better understanding of the factors associated with violent escape outcomes, and particularly the circumstances under which they are likely to occur. Thus, it is critical for the current study to provide a thorough examination of both escapes from custody and violent escape outcomes, using current data.

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Second, another shortfall of prior research noted in this chapter's review of the literature is limited methodologies. Relying mostly on descriptive analyses, very few studies have employed any type of inferential analyses, including bivariate statistics, to examine relationships between various inmate-, incident-, or facility-level factors and escapes from custody. Even fewer have used multivariate statistical techniques and controlled for potentially spurious relationships. One example that underscores the importance of using multivariate techniques is the aforementioned consistent finding that property offenders are more likely to escape from custody than violent offenders (e.g., Culp, 2005; Holt, 1974; Murphy, 1984; Lyons, 2011). These studies have failed to control for potentially confounding variables, such as the security level of the facility, which could attenuate the observed relationship between property offenders and escape behavior if included in a multivariate model. Thus, the current study provides the opportunity to contribute to the literature by employing multivariate statistical techniques.

Finally, this chapter identified three distinct levels at which factors contributing to escapes may occur: the inmate, the incident, and the facility. This hierarchical structure is particularly important for chapter seven (the examination of violent escape outcomes) because all three levels of factors are included in those models and comparisons are made between the significance and importance of each type of factor.

Missing from most of the existing escape research are theoretical explanations for why escapes occur, or why one might expect to see a relationship between certain predictors and escape outcomes. Though prior research is limited in this respect, there are many similarities between the findings discussed in this chapter and well-established theories of criminal and institutional misbehavior, such as the deprivation model, importation model, management perspective, situational crime prevention, routine activities, and self-control theory. The next chapter introduces each of these theories and provides a discussion of how

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they are supported (or, in some cases contradicted) by the findings from existing studies of escape.

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Chapter 3: Theoretical Explanations of Escape

Theories of Institutional Misbehavior

Traditional theories of institutional misbehavior were rooted in sociological processes. The deprivation model, for example, focuses on the degree to which misbehavior can be explained by the sociological environment that is unique to the custodial setting. However, as the general trend in criminology shifted from sociologically-grounded theories to theories based on opportunity and decision-making processes, so too have theories of institutional misconduct. As such, much of the more recent research has tested how opportunity-based theoretical frameworks—such as situational crime prevention and routine activities—are able to explain when an inmate will misbehave behind bars.

Empirical tests of these theories have included outcomes of both collective (e.g., prison riots) and individual (e.g., inmate-on-inmate or inmate-on-guard assaults) institutional misbehavior, as well as of violent (e.g., assault) and non-violent (e.g., possessing contraband) misbehavior (McCorkle, Meithe, & Drass, 1995). However, very little research has specifically examined the applicability of these theories to escapes from custody. Escapes are a unique form of institutional misbehavior. They can generally be categorized as individual acts of misconduct, although they occasionally occur in groups (see Culp, 2005; Culp & Bracco, 2005). Moreover, escapes can either be violent or non-violent and do not fit perfectly into either category. As such, the data used herein present an opportunity to examine the degree to which several theories of institutional misbehavior are able to improve the understanding of when escapes are likely to occur and when they are likely to lead to violent outcomes.

The remaining sections in this chapter provide an overview of the relevant theories of institutional misbehavior, including the underpinnings, developments, and empirical

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status of the theories. Each section then concludes with a discussion of how that theory might be used to explain escapes from custody.

The Deprivation Model

As one of the oldest theories of institutional misbehavior, the deprivation model has long been used to explain many types of institutional misbehavior. The deprivation model is rooted in the process of prisonization (Clemmer, 1940). When inmates enter the institution, they are exposed to the unique prison environment and, consequently, learn to "wise up" to the rules and adapt to the conditions by modifying their behavior. In short, they assimilate to the unique world of prison. This process of assimilation is characterized by the acceptance an inferior role, the learning of institutional organization and structure, the development of new habits and routines, and the adoption of prison lingo. The degree to which prisonization occurs is impacted by the types and extent of social relationships inmates have before being incarcerated, the relationship and experiences they have with other actors in prison, involvement in work inside the prison, the acceptance of prison rules and roles, and demographic characteristics. In short, all of these aspects of assimilation create a "schemata of prisonization which may serve to illustrate its extremes" (Clemmer, 1940, 301).

Sykes (1958) extended this concept by outlining the deprivation model of prison misbehavior. This model was rooted in the belief that even though they interpret their conditions of confinement differently, all prisoners agree that life in a custodial setting is depriving. Sykes outlined five major deprivations prisoners face: the deprivation of liberty, the deprivation of goods and services, the deprivation of heterosexual relationships, the deprivation of autonomy, and the deprivation of security. These deprivations, or "pains of imprisonment", cause inmates to reject correctional administrators. Prison staff must maintain order by balancing these deprivations with reciprocity. In other words, staff must

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enforce some of the rules some of the time, while simultaneously allowing certain violations to occur in exchange for cooperation from inmate leaders. Misbehavior occurs when the control becomes unbalanced and the deprivations become too severe (Sykes, 1958).

Since its inception, the deprivation model has been re-conceptualized in terms of "relative deprivation". While it is true that prisoners are almost always more deprived than free individuals outside of custody, they do develop "standards of just deprivation" by which they compare their own conditions to analogous situations (Useem, 1985, 679). This "subjective interpretation of deprivation" is more plausible than the idea of "absolute levels of deprivation" (Carrabine, 2005, 899). Likewise, Fox (1971) hypothesized that when living conditions in a prison are worse than other comparable environments, the institution becomes a time bomb that can be set off by a relatively minor incident. This is known as the "powder keg theory" (see also Fox, 1973). In this sense, deprivation theories assume that misconduct is a rational and purposive response to inhumane conditions (Carrabine, 2005).

Both absolute and relative deprivation have been empirically tested. The deprivation model is typically tested at the facility-level, using characteristics of the institution as measures of deprivation. Measures of absolute deprivation have included overcrowding, visiting patterns, involvement in prison programs, and the degree to which rules are enforced (McCorkle et al., 1995), while measures of relative deprivation examine changes in the levels of deprivation (Cao, Zhao, & Dine, 1997). Both absolute deprivation (Barak-Glantz, 1985; Cooke, 1989; Ellis, Grasmick, & Gilman, 1974; Gaes & McGuire, 1985; Silberman, 1988; Light, 1990) and relative deprivation (Akers, Hayner, & Gruninger, 1977; Gaes & McGuire, 1985; McCorkle et al., 1985) have been supported in their ability to explain several types of correctional misconduct.

While there has not been a specific test of the deprivation model using escapes as an outcome variable, findings from several studies provide information about the utility of the

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deprivation model in explaining escape behavior. For example, prior research has examined the relationship between overcrowding, a common measure of deprivation, and escapes (Anson & Hartnett, 1983; Jan, 1980). Other research supports the central tenets of the deprivation model. For example, studies have found that the ratio of treatment staff to inmates and the annual resources per inmate are strongly, negatively correlated to the number of escapes from a facility (Anson & Hartnett, 1983). Both of these variables are measures of deprivation. Additionally, one of Sykes' (1958) five deprivations—the deprivation of security—has been shown to be an important predictor of escape behavior. Specifically, sexual or physical assaults and threats from other inmates have been shown to be catalysts of escape (Hilbrand, 1969; Kentucky Bureau of Corrections, 1979; Loving et al., 1959; McNeil, 1978; Murphy, 1984; Sandhu, 1996; Wharry, 1972).

One important finding in escape research that may contradict assumptions of the deprivation model is the impact of the facility's security level on escapes. Higher security facilities, by definition, are more restrictive than lower security facilities. Thus, if the deprivation model were true, inmates in higher security facilities should experience higher levels of deprivation and, consequently, be more likely to escape. However, all research has demonstrated the opposite trend: Escapes are much more likely to occur in lower security facilities or during authorized releases from the facility (Anson & Hartnett, 1983; Culp, 2005; Sturrock et al., 1991).

It is unclear from prior research how strong the link between deprivation theory and escapes from custody may be. While some findings from a few prior studies indicate that the deprivation model may be useful in understanding escapes (e.g., the relationship between the ratio of corrections staff-to-inmates and escapes), other research clearly contradicts central tenets of the theory (e.g., the relationship between security level and escapes). Despite these inconsistencies, it is nonetheless a worthwhile endeavor to explore

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the compatibility of the deprivation model in explaining escapes from custody. First, the deprivation model is one of most established sociological theories of institutional misbehavior and has been applied to several different types of misconduct. Thus, it is important to determine whether (or not) the model is generalizable to a previously un-tested outcome. Second, the deprivation model is particularly well-suited for empirical tests at the facility-level. Several of the current study's research questions focus on which facility-level variables (e.g., staff-to-inmate ratio, overcrowding, and security level) are associated with the number of escapes from a facility. Finally, very little prior research has applied any theories to escapes from custody. As such, there is utility in testing, and comparing, several different theories to determine the extent to which they can improve the understanding of escape behavior and violent escape outcomes.

The Importation Model

Unlike proponents of the deprivation model, Irwin and Cressey (1962) did not believe that the prison environment alone caused inmates to misbehave. Instead, they reasoned that inmates bring their life experiences, social and intellectual insufficiencies, and criminal values with them to prison. Inmates bring their deviant norms and values with them and maintain criminal ties in prison. Irwin and Cressey thus reasoned that the deviant subculture of prisons was derived from inmate characteristics and their experiences prior to imprisonment.

A theoretical concept similar to the importation model is the idea of prison as a "not-so-total institution" (Farrington, 1992; see also Jacobs, 1976). This concept also directly challenged Goffman's conception of prisons as a total institution, positing that prison misconduct is linked to forces outside of the prison. In other words, behavior that takes place within prison is influenced by "distal and proximate causes of unrest that emanate from beyond the walls" (McCorkle et al., 1995, 321). For example, racial tensions and

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rhetoric of the civil rights movements of the 1960s have been linked with the politicization and increased militancy of inmates, as well as organized violence in prison (Brody, 1974; Irwin, 1980; Wicker, 1975). In addition, McCorkle and colleagues (1995) suggested that the economic conditions of the community in which a prison is situated can affect the stability inside the prison.

Both the importation model and the "not-so-total institution" concept converge on the premise that the prison environment is not solely responsible for how inmates conform to rules; these theories suggest that investigations of institutional misbehavior should include factors beyond characteristics of the facility. Empirical tests of the importation model are typically conducted at the individual-level, examining the relationship between inmates' misbehavior and demographic variables such as gender, age, race, SES, education, marital status, prior criminal involvement, and history of mental illness and substance abuse (Akers et al., 1977; Cao et al., 1997; Ellis et al., 1974; Gaes & McGuire, 1985; Poole & Regoli, 1983; Wright, 1991). Studies of the importation model are based on the assumption that demographic and criminal history variables are indicative of inmates' underlying propensity to engage in misbehavior, which can be "imported" to prison. For example, if young males with poor socioeconomic backgrounds are more likely to engage in criminal behavior in the community, then they should be more likely to engage in institutional misbehavior once they are in prison (rather than being influenced to engage in misbehavior by the deprivations associated with prison).

Consistent with these empirical investigations, much of the prison escape research has examined the relationship between inmate-level characteristics and escape behavior. Several findings in particular seem to support the importation model as it applies to escapes from custody. For instance, some research has showed that escapees were more likely than non-escapees to be young men with long and frequent involvement in the

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criminal justice system (see Anson & Hartnett, 1983; Basu, 1983; Chard-Wierschem, 1995; Culp, 2005; Guenther, 1983; Holt, 1974; Kentucky Bureau of Corrections, 1979; Lyons, 2011; Morgan, 1967; Murphy, 1984; McNeil 1978; Scott et al., 1977; Stone, 1975; Sturrock, 1991; Virginia Department of Corrections, 1978; Wharry, 1972). Moreover, two tests of the importation model have specifically included escape as an outcome. One of these studies, which integrated the importation model with a life course perspective, found that youths who had a greater number of out-of-home placements, who were first confined at an earlier age, and who had greater histories of emotional abuse were more likely to escape from custody than other confined youths (Delisi et al., 2011). The second study found that inmates with longer, more extensive histories of drug abuse, criminal behavior, and criminal justice involvement engaged in significantly more escapes than other inmates (Walters & Crawford, 2013).

The Management Perspective

Since the 1980s, theoretical perspectives of institutional misconduct have shifted away from their sociological roots toward theories of administrative control and crisis management (the "management perspective"). According to the management perspective, correctional misconduct is a result of ineffective or failed management, not necessarily of sociological factors unique to the prison or imported inmate subcultures. Under this perspective, effective prison administrators have the potential to manage even the most uncontrollable inmates (DiIulio, 1989).

The management perspective combines elements of deprivation theory with elements of social disorganization theory. These theories focus on the deprivation in prison conditions relative to comparable environments or relative to previously endorsed standards, as well as on the organization of prison staff. Prison environments characterized by deprivation and disorganized prison staff lead to perceptions of illegitimacy among

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inmates, and inmates who perceive their environments as illegitimate are more likely to misbehave in prison (see Boin & Van Duin, 1995; Carrabine, 2005; DiIulio, 1989; Goldstone & Usteem, 1999; Useem & Kimball, 1989; Useem & Reisig, 1999).

The management perspective has been applied and tested in different situations. It has been used to analyze individual violence against staff and other inmates (Farrington & Nuttall, 1980; Gaes & McGuire, 1985; Kratcoski, 1988; Light, 1990; Marquart & Crouch, 1985) as well as collective violence (Boin and Rattray, 2004; Boin and Van Duin, 1995; Crouch, 1980; Wilsnack, 1976). Like the deprivation model, the management perspective is usually tested with facility-level characteristics. Some of the predictors derived from the management perspective include guard-to-inmate ratio, staff turnover, and size of the facility (DiIulio, 1989; McCorkle et al., 1995; Useem & Kimball, 1989).

The management perspective has not been specifically used to analyze escapes from custody. However, findings from previous research indicate that this perspective could be useful for understanding escapes. The findings from one study indicated that turnover in prison populations can affect an institution's stability, increasing the opportunity for escapes (Kentucky Bureau of Corrections, 1978). Similarly, Allen (1969) found that structural factors such as staff turnover and institutional adjustment can cause inmates to escape. The results of Anson and Hartnett's (1983) study suggested that the ratio of treatment staff to inmates had a larger impact on the number of escapes from a particular facility than the ratio of administrative personnel to inmates or the ratio of guards to inmates. Certain administrative decisions, such as placing inmates in facilities far away from their families and denying visitation, have also been shown to lead to escapes (Duncan & Ellis, 1973; Kentucky Bureau of Corrections, 1979; Loving et al., 1959).

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Situational Crime Prevention

Recent research has begun applying seminal criminological theories, such as situational crime prevention, to the prison environment (Steinke, 1991; Wener, 2006). Situational crime prevention, developed over 30 years ago by Ronald Clarke (1980), is a theoretical framework that is different from other criminological theories in that "it is focused on the setting in which crimes occur, rather than on those committing criminal acts" (Clarke, 2009, 259). The situational crime prevention framework assumes that implementing uniquely designed managerial or environmental changes can prevent the opportunities for individuals to engage in specific types of crimes in particular settings (Clarke, 2009; Schneider and Kitchen, 2002).

Researchers initially believed that situational crime prevention could only be used to explain property offenses that could be categorized as "opportunistic" crimes, such as theft and burglary (see Clarke, 2009). Since then, it has been used to explain a range of criminal behaviors, including organized crime (Bullock, Clarke, & Laycock, 2010; Cornish and Clarke 2002; Levi & Maguire, 2004; Soudijn & Kleemans 2009; Van de Bunt & Van der Schoot, 2003; Von Lampe, 2011) and terrorism (Clarke & Newman 2006). In the application of this framework to institutional misbehavior, researchers have assumed that opportunities for misconduct are constrained by inmates' daily routines and environment (Steiner & Wooldredge, 2009). Wener argued that prison architecture, prison organization, and staff/inmate social systems can "influence the way inmates perceive their situation (in particular, how safe they feel, competition for scarce resources, and how likely they are to suffer from the consequences of actions)" which will "lead to behaviors that directly and indirectly affect the likelihood of violent action" (2000, 50). One empirical test of this assumption found that the architectural design of the prison was associated with nonviolent misconduct, but not violent misconduct (Morris & Worrall, 2014).

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Wortley's (2002) contributions to the development of situational crime prevention were especially influential to the study of institutional misbehavior, including escapes from custody. His book detailed a theory of institutional misconduct based on situational crime prevention principles. He argued that a model of controlling inmates' behavior in prison using situational crime prevention elements should focus on two types of strategies. First, he argued for strategies to control situational precipitators of misconduct. Situational precipitators can be seen as psychological processes that precede any conduct. The strategy of controlling precipitators was further divided into the following techniques: controlling the cues that can prompt misbehavior; controlling the pressures that induce misbehavior; reducing the permissibility of misbehavior; and reducing provocations of misbehavior, such as crowding and environmental irritants. The second strategy was to increase situational regulators using the opportunity-reduction model. Again, this strategy was further divided into several techniques: making it more difficult for inmates to misbehave (e.g., target hardening, controlling access to certain areas and objects); increasing the likelihood that misbehavior will be detected; reducing the anticipated rewards of misbehavior; and increasing the anticipated punishments for misbehavior (Wortley, 2002).

In applying the situational crime prevention framework to escapes, Wortley (2002) examined variables such as how much of their sentence inmates serve before they escape, the season and time of day during which inmates escape, the institutional security level of the facility from which inmates escape, and the location of the escape (i.e., inside or outside of the facility). Thus, many of the variables rooted in the situational crime prevention framework were measured at the incident-level, rather than the facility- or inmate-level.

Routine activities

Like situational crime prevention, routine activities theory is another opportunity-based theoretical framework of criminal behavior. Routine activities theory was created by

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Cohen and Felson (1979) to analyze crime trends and cycles. The primary assertion of routine activities it that there are three general elements in each criminal event: 1) Likely (or motivated) offenders, 2) suitable targets, and 3) the absence of capable guardians. The convergence in time and space of these three elements is useful for understanding crime rate trends. These elements are "almost always" present when crimes occur (Felson & Boba, 2009) and a lack of any one of these elements can serve to prevent crime. The focus of the routine activities framework is on the circumstances in which a crime was committed, rather than on the individual characteristics of the offender

The routine activities framework has been supported in examinations of various types of victimization, such as: work-place victimization (Wooldredge, Cullen, & Latessa, 1992; Landau & Bendalak, 2008); victimization in the urban drinking setting (Fox & Sobol, 2000); hate crime victimization (Byers & Crider, 2002); and victimization of the elderly (Payne & Gainey 2006). In addition to victimization, the routine activities framework has been successfully applied to the crime of knowingly buying stolen property (Cromwell & McElrath, 1994); bank robberies (Wang, 2002); and even hotel security (Brock & Walker, 2008). Still, while only one study has used routine activities theory to analyze prison escapes (Culp & Bracco, 2005), findings from several other studies have implications for each of the theory's three elements:

1. **Motivated Offender:** Though limited, some of the extant escape research can inform the understanding of escapee motivation. Most studies have focused on the individual characteristics that are associated with escape behavior, such as age, gender, race, and criminal history. As noted previously in this chapter, the findings from these studies indicate that "motivated" escapees are young, male property offenders with lengthy and diverse histories of criminal behavior and criminal justice involvement (e.g., Chard-Wierschem, 1995; Culp, 2005; Guenther, 1983;

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Johnson & Motiuk, 1992; Lyons, 2011; Murphy, 1984; Sturrock, 1991). Inmates may also be motivated to escape as a result of duress or necessity, such as being beaten by correctional staff or being forced to escape to avoid physical harm (Lesser, 1972; Fletcher. 1978; Jeffries, 1979). In line with this supposition, Sandhu (1996) found that 20 percent of the cases in his study had some kind of event that triggered the escape, such as an impending transfer, news of s family illness, relationship problems, or sexual problems with other inmates.

2. **Suitable Target:** When Cohen and Felson introduced the concept of "suitable targets", they said that various components determine a target's suitability, including value, visibility, accessibility, and inertia. Thus, expensive and easily moveable items, such as vehicles and appliances, have a high risk of being illegally removed as they are the most suitable targets (Cohen & Felson, 1979). Felson and Boba (2009) later added that concealability, removability, availability, value, enjoyment, and disposability influence target suitability. To assess target suitability in terms of escapes, one should examine the physical environment in which the escape occurred, including the security measures of the institution and the contextual circumstances of the incident. Following this approach, one study that applied routine activities to escapes found that the time of day, escape method, and location of escape were important in understanding when escapes were likely to occur (Culp & Bracco, 2005).
3. **Capable Guardianship:** Capable guardians generally include officials, such as police officers (Cohen & Felson, 1979), but they can also be security staff (Wang, 2002), staff (Payne & Gainey, 2006; Wang 2002) management practices (Fox & Sobol, 2000), family members (Mannon, 1997; Kennedy & Silverman, 1990), the victims themselves (Brock & Walker, 2008), and/or ordinary citizens (Byers & Crider, 2002).

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Felson and Boba (2009) revisited the notion of capable guardian and created the crime triangle, which included: the handler of the offender, the guardians of the target, and the place manager of the location of the crime (Felson & Boba, 2009). Since a majority of escapes occur in lower security correctional facilities, one can infer that the lack of capable guardianship is an important element of escaping from custody. In fact, Culp & Bracco (2005) found that escapes typically occurred in situations where there was diminished security (e.g., low-security facilities or during work assignments outside secure areas). In addition, Anson and Hartnett (1983) found that prisons with more well-trained counselors, case workers, educators, and recreational specialist experienced fewer escapes. This finding refers not only to the amount of guardianship available, but explicitly to the capabilities of those guardians. In other words, treatment staff may be at least as important for preventing escapes as correctional officers or other custodial staff.

Self-Control Theory

A final criminological theory that is compatible with opportunity theories like situational crime prevention and routine activities theory is self-control theory (Gottfredson & Hirschi, 1990). Gottfredson and Hirschi suggested that every type of crime—from shoplifting to murder to white collar crime—serves a single purpose: providing immediate, easy, short-term gratification. In this sense, all types of crimes (including escapes) stem from the same propensity and distinctions between crime types are irrelevant. Gottfredson and Hirschi believed that offenders' criminal propensity is established early in life and remains stable throughout their lifetime. These theorists argued that although people do not lose their criminal propensity, they tend to eventually age out of their criminal behavior while their low-self-control manifests in other ways (e.g., auto accidents, inadequate parenting, etc. In a meta-analysis of self-control studies, Pratt and Cullen (2000) found that

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self-control was significantly negatively related to crime and analogous behaviors (see also Delisi, 2001; Piquero & Bouffard, 2007).

Gottfredson and Hirschi (1990) did not specify how self-control was to be measured, and is has subsequently been measured many different ways. Studies measuring self-control have used either behavioral or attitudinal measures (Pratt & Cullen, 2000). For example, in one study that attempted to predict "driving under the influence" behavior, seat belt use was used as a behavioral measure of self-control (Keane, Maxim, & Teevan, 1993). Another researcher analyzed four items from offenders' criminal records as indicators of low self-control: providing false names (i.e., aliases), social security numbers, dates of birth, and places of birth, to the police to avoid immediate arrest (Delisi, 2001).

Despite these various studies, the Grasmick scale has been the most widely-used measure of self-control. This scale is derived from a 24 item attitudinal factor scale, based on the six primary elements of self-control: impulsivity; a proclivity for simple tasks; risk seeking; a preference for physical activities; self-centeredness; and a volatile temper (Grasmick, Tittle, Bursik, & Arneklev, 1993). This scale has become the dominant measure of self-control in criminological research (Pratt & Cullen, 2000), even though its validity has been called into question. For example, Piquero, Macintosh, and Hickman (2000) found that the Grasmick scale suffered from item biases and that those with low-self-control may not respond similarly to attitudinal items. In short, although there appears to be an established norm of using the Grasmick et al. scale to measure self-control, alternative methods may be useful, especially when the data are limited.

While self-control has not been used to study escape behavior specifically, much of the findings from previous research suggest that self-control theory may be a useful framework for understanding escapes. For example, Gottfredson and Hirschi (1990) theorized that criminal propensity is stable, but criminal behavior slows down/ceases with

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age. Consistent with this assumption, previous literature has consistently shown that escapees tend to be younger than inmates who do not escape from custody (Anson & Hartnett, 1983; Culp, 2005; Scott, Mount, & Duffy, 1977). In addition, Gottfredson and Hirschi (1990) asserted that self-control is formed early in life due primarily to child-rearing practices. This hypothesis also seems to apply to escapees. For example, Sandhu (1996) found that inmates who escaped multiple times were more likely to have been raised in neglectful, abusive, and criminal families.

Another important similarity between the escape literature and self-control theory is the relationship between criminal and analogous behaviors. Gottfredson and Hirschi (1990) asserted that individuals who engage in criminal behavior would also engage in other risky behavior, such as smoking, drinking, gambling, unprotected sex, etc. By extension, inmates with lower levels of self-control would not only be more likely to escape from custody, but also have lengthier and more diverse criminal histories. Studies have found that escapees tend to have multiple escapes on their records (Sandhu, 1996; Anson & Hartnett, 1983). Sandhu (1996) also found that multiple escapees tend to have: more chronic substance abuse problems; longer criminal records; longer juvenile records; higher risk scores; more prison misconducts; and low prison evaluations. Furthermore, escapees often have long and frequent histories of criminal justice involvement (see Anson & Hartnett, 1983; Basu, 1983; Chard-Wierschem, 1995; Culp, 2005; Guenther, 1983; Lyons, 2011; Murphy, 1984; Sturrock, 1991). These findings support the notion that escapees have stable low self-control that manifests in many different anti-social and analogous ways. These findings also suggest that using a behavioral scale to measure low self-control in escapees may be more feasible than using a personality scale like the Grasmick scale.

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Chapter Conclusion

This chapter described several theories of institutional misbehavior that are used to create the current study's theoretical framework, and provided an overview of how these theories are related to the findings from prior escape research. This theoretical framework informs the hierarchical structure of escape variables described in chapter two. Specifically, the deprivation model, management perspective, and the "capable guardianship" element of routine activities are best suited at explaining the relationships between facility-level characteristics (e.g., security level, inmate-staff-ratio, capacity, and demographics of the inmate population) and escape outcomes (see chapters four, five, and seven). Other theories—including the importation model, self-control theory, and the "motivated offender" element of routine activities—inform the interpretation of the relationships between inmate-level characteristics (e.g., age, race, gender, and criminal history) and escape outcomes (see chapters six and seven). Finally, situational crime prevention and the "suitable target" element of routine activities are most appropriate for identifying which incident-level variables (e.g., time of day, assistance, location of incident, and secure custody) are likely to be associated with escape outcomes (see chapter seven).

The next four chapters discuss the methodology of and results from the current study's analyses. Specifically, chapter four presents the analyses of jail-level characteristics and escapes, while chapter five presents similar analyses of prison-level characteristics. Next, chapter six discusses the results of the analyses of individual-level characteristics and escape behavior, while chapter seven discusses the analyses of individual-, incident-, and facility-level characteristics and violent escape outcomes. It is worth reiterating that these four chapters only present the methodologies and results of these analyses, while chapter eight provides a thorough discussion of how these findings answer the study's research questions and examines the implications for theory and practice.

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Chapter 4: Jail-Level Characteristics and Escape

This chapter examines the degree to which facility-level characteristics of jails are associated with the aggregate number of reported escapes among these correctional facilities. As such, the results in this chapter address the study's first research question. The following sections of this chapter detail 1) the methods employed for the analyses, including a description of the data, variables, and analytic technique used in the chapter, and 2) the results of these analyses. The chapter concludes with a brief discussion of the findings, but a more thorough discussion of the theoretical and practical implications of these findings is provided in chapter eight.

Methods

Data

The analyses in this chapter use data from the *2011 Annual Survey of Jails* (ASJ; Bureau of Justice Statistics, 2011). The goal of the ASJ is to provide jurisdictional information on jails and detention facilities operated by counties and municipalities across the United States at regular intervals (approximately every one to two years). The 2011 ASJ was the 24th survey conducted by the Bureau of Justice Statistics (BJS) in the series of ASJ data collection efforts which began in 1982. The population from which the ASJ sample is drawn comes from the Census of Jails, which is conducted every five to six years. The ASJ collects data on various jail characteristics, such as admissions and releases, as well as information on the jurisdictions' rated capacity, level of occupancy, and inmate demographics (e.g., inmates' race, gender, age, etc.). Beginning in 2010, BJS enhanced the ASJ instrument to gather additional data on the number of inmates convicted and serving a sentence versus those awaiting trial.

Drawing from the 2005 Census of Jails, which included 2,830 jail jurisdictions nationwide, the 2011 ASJ sample consisted of 873 jail jurisdictions. Because the ASJ's unit

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of analysis is "jurisdictions" as opposed to "facilities", the 873 jurisdictions in the 2011 ASJ represented 930 local jail and detention facilities.[1] By way of example, if a Sheriff's Department operated multiple jail facilities in a single county, the responses for all of these facilities were aggregated to the jurisdiction (county) in the ASJ. It is important to note that these 873 jurisdictions were not chosen through random sampling. The ASJ sampled with certainty all jails that 1) were operated jointly by two or more jurisdictions (typically referred to as "regional" or "multijurisdictional" jails; n=67), and 2) held at least one juvenile inmate during the 2005 Census of Jails and had an average daily population (ADP) of 500 or more, or held only adults during the 2005 Census and had an ADP of 750 or more (n=268). The remainder of the jurisdictions included in the ASJ (n=538) were selected through stratified random sampling, with strata based on whether jails held at least one juvenile during the 2005 Census and the jail's ADP.

Beginning in 2010, BJS gave the large jurisdictions sampled with certainty an enhanced survey designed to produce better indicators of jail safety and security. The 366 jurisdictions sampled with certainty in the 2011 ASJ were thus asked to provide additional data on the flow of inmates going through their jails, the amount of time inmates served in jail, the characteristics of their staff, and various measures of inmate misconduct (including escapes and attempted escapes). The analyses presented in this chapter use this sub-sample of large jurisdictions from the 2011 ASJ who provided information about inmate misconduct (n=366). The reference period for questions on the 2011 ASJ was July 1, 2010 to June 30, 2011.

[1] Because a large majority of jurisdictions only have one facility, the words "facility/jail" and "jurisdiction" are used somewhat interchangeably in the remainder of the chapter.

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Variables

Dependent variable: The dependent variable for the analyses in this chapter is the *Number of Escapes and Attempted Escapes*. This variable represents the number of inmates from each jail who were written up or found guilty of escaping or attempting to escape during the 2011 ASJ's reference period. Because this variable represents an aggregate number from the jurisdiction, it has a count distribution.

Independent Variables: The independent variables in these analyses are drawn from the theoretical framework discussed in chapter three. Because these analyses are conducted at the facility-level (i.e., the characteristics of jail jurisdictions), the majority of these variables are derived from the deprivation model, the management perspective, and the routine activities framework (in particular the element of capable guardianship).

Many of these independent variables capture administrative differences between the facilities. For instance, the variable *Privately Operated* is a binary variable indicating whether a facility was operated by a government agency (e.g., Sheriff's department) or a private company. *Percent from Other Authorities* is a measure of the percent of inmates who were being held in the jail on behalf of other authorities, such as federal agencies (e.g., the Bureau of Prisons or U.S. Immigration and Customs Enforcement), state departments of corrections, or other local jurisdictions. *Rated Capacity*[2] is a measure of the facility's size, while *Percent Capacity,* which is the ADP of the entire inmate population divided by the rated capacity and multiplied by 100, captures the degree to which the facilities were crowded. Further, *Inmate-Correctional Staff Ratio* is measured by the ADP divided by the number of correctional officers, while *Inmate-Other Staff Ratio* is the ADP divided by the number of jail employees who were not correctional officers (including administrative,

[2] Rated capacity was logarithmically transformed in the analyses to improve the normality of its distribution.

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treatment, and medical staff). Though not an administrative measure per se, the *Region* in which the facility was located includes the following categories: Northeast[3], Midwest[4], South[5], and West.[6]

Other independent variables captured demographic variation among the jail jurisdictions. *Percent Male* is the number of males divided by the number of all individuals confined in a jurisdiction multiplied by 100.[7] Similarly, *Percent Juvenile* is the percentage of individuals in a jurisdiction's inmate population under the age of 18. Another demographic measure is *Ethnic Heterogeneity,* which indicates the amount of diversity in a facility in terms of inmates' racial and ethnic composition. Following Blau (1977, p. 78), ethnic heterogeneity was measured as $1\text{-}[\sum {P_{white}}^2 + {P_{black}}^2 + {P_{other}}^2]$, where P is the portion of the total inmate population in each racial/ethnic group; thus, a score of 1 represents completely ethnic heterogeneity, while a score of 0 represents complete ethnic homogeneity.[8] The final independent variable related to inmate demographic characteristics is *Percent Noncitizens.* This variable represents the percentage of

[3] Connecticut, Delaware, District of Columbia, Maine, Massachusetts, Maryland New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.
[4] Dakota, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin.
[5] Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia.
[6] Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.
[7] Unlike prisons, which often have separate male and female facilities, jails often hold both male and female inmates together in a single facility. For this reason, and because the unit of analysis in this dataset is "jurisdiction" (which may have encompassed separate male and female jails), it was decided to measure the percent of male inmates in a particular facility, rather than creating a dummy variable for whether the facility held males or females.
[8] It was decided to use ethnic heterogeneity instead of another facility-level measure of inmate race and ethnicity, such as the percent of one race or ethnicity represented in a facility, because ethnic heterogeneity is often used as a macro-level predictor of criminal behavior in other units of analysis (e.g., neighborhoods). There was also no theoretical justification to examine the percentage of one race in a facility over another.

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individuals in a jail jurisdiction's inmate population that were not citizens of the United States.[9]

A final group of independent variables are related to the factors that make jails unique from prisons. Because very little research has been conducted on jails generally, or on escapes and other types of inmate misconduct in jails specifically, these variables are unique to the current study. However, these jail-level covariates are consistent with the theoretical framework outlined in chapter three, and have the potential to influence the amount of misbehavior, such as the number of escapes and attempted escapes, in a particular facility. The first of these variables, *Percent Unconvicted*, is an indicator of the percent of all inmates in a facility that were not convicted of a crime. Typically, these inmates were in jail awaiting trial. *Percent Short Stay* represents the percent of all inmates discharged from jail between June 24 and June 30, 2011 who had only been incarcerated for seven days or less prior to their release. Finally, *Percent Turnover* was measured as the number of new admissions to jail between June 24 and June 30, 2011, divided by the ADP and multiplied by 100.

Analytic Technique

Because the dependent variable in the present chapter is the number of escapes and attempted escapes from each facility, the analyses must account for this count distribution. Count data are generally highly skewed, have heteroskedastic error terms, include only integer values, and are bound by zero. As such, count data cannot be properly modeled with linear regression methods (e.g., ordinary least-squares) and must instead rely on an

[9] While this variable has not typically been used in prior studies examining the theoretical frameworks discussed in chapter three, a high percentage of non-citizens could potentially pose a unique challenge to jail administrators, suggesting that this variable fits under the "management perspective". In addition, prior criminological research has indicated that similar macro-level measures, such as the number of immigrants in a given neighborhood, have an effect on crime rates (e.g., MacDonald, Hipp, & Gill, 2013; Sampson, Raudenbush, & Earls, 1997).

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analytic model that accounts for their unique distribution, such as Poisson or negative binomial regression.

One should only use Poisson regression if the conditional mean of the outcome variable equals its conditional variance (the assumption of equidispersion). Conversely, negative binomial models are less restricted than Poisson models and are appropriate when data are overdispersed (Cameron & Trivedi, 2007). One simple, non-rigorous way to determine if the dependent variable meets the assumptions of equidispersion is to compare its mean and standard deviation. As indicated in Table 2 below (page 68), the standard deviation of the number of escapes/attempted escapes is nearly three times greater than the mean of this variable, indicating that negative binomial regression is more appropriate for these analyses than Poisson regression. This inference is confirmed by the likelihood ratio test of the overdispersion parameter.[10] For these reasons, the analyses in this chapter use negative binomial regression.

Count models are also often specified with an exposure variable. Exposure variables control for an external factor that would contribute to the number of observations in the dependent variable. Essentially, then, the exposure variable turns counts into rates. One common example is comparing the number of crimes across several cities, specifying the exposure variable as the number of individuals who live in the city. This specification allows researchers to compare the number of crimes across cities, regardless of their size or population. Likewise, the exposure variable in the current analyses is the jails' ADP, which makes the number of escapes and attempted escapes comparable across facilities.

[10] The author conducted the likelihood ratio test on the full model in Stata 13. This test determines if fitting a model with a negative binomial distribution is a significant improvement over the Poisson distribution. If the p-value of this test is significant, it indicates that the negative binomial model is a significantly better fit to the data than the Poisson model. For the data used in this chapter, the Likelihood ratio test statistic = 1775.34, p<.000.

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A Note on Missing Data

One important limitation to the data presented in this chapter, as well as chapters five, six, and seven, is the number of variables with missing data. This section outlines the methods employed to deal with the missing data in these chapters. The default method of dealing with missing data in most regression-based analyses is listwise deletion. Listwise deletion drops every case from the analysis that is missing on any variable included in the model. Thus, without addressing the missing data in these chapters, the analyses in these chapters would only be able to use cases that have no missing data. That would result in an important drop in statistical power (due to the reduced sample size), and would bias the results if the data are not missing at random.

It is also possible to simply not include variables in the analyses that have high amounts of missing data; however, this is also not a viable option for the current dissertation. First, many of the variables in this and subsequent chapters that have high amounts of missing data are theoretically important and dropping them from the analyses limits the understanding of the processes being modeled. Second, the variables with relatively few missing values are often missing values on *different* cases, which can still have a substantial impact on the number of cases included in the analyses. For instance, even if three variables are each missing only on five percent of the cases, this could still potentially lead to fifteen percent of all cases being dropped.

Another option for dealing with missing data is pairwise deletion. This method removes only the correlations with missing values from the analysis, but does not drop observations entirely that have missing data. However, this method is also not recommended for the current research for two reasons. First, pairwise deletion is prone to introducing bias into the parameter estimates because different correlations are based on different subsets of cases, depending on which variables are missing on which case

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(Graham, 2009). In addition, and more importantly, pairwise deletion can only be used in linear regression, and is not appropriate when the dependent variables being are counts or categorical (as they are in the subsequent chapters).

For these reasons, the most appropriate method for handling missing data is multiple imputation (MI). MI uses the distribution of the observed data to estimate a set of reasonable values for any missing data. It involves the creation of multiple datasets that are analyzed individually, but identically, to produce a set of parameter estimates which are then combined to obtain overall estimates and variances (White, Royston, & Wood, 2011). MI has several advantages over other techniques for dealing with missing data. For example, MI generates approximately unbiased estimates of standard errors, and it can be used with almost any type of data or analytic technique (Allison, 2000; see also Acock, 2005). MI, therefore, is considered to be "one of the most attractive methods for general-purpose handling of missing data in multivariate analysis" (Allison, 2000, 301).

Conditional MI, also known as Multiple Imputation by Chained Equations (MICE), is a practical, rigorous method of imputing missing data. MICE is particularly well-suited for variables that are not normally distributed and thus provides more accurate estimates than other forms of MI, such as joint or Multivariate Normal Imputation[11], for binary and categorical variables (Kropo, Goodrich, Gelman, & Hill, 2012). MICE works by creating an imputation model for each variable with missing values. Next, it regresses a variable with missing data on all of the other variables specified in its imputation model, replacing that variable's missing values with values predicted by the other variables in the model. It then does the same with each subsequent variable that has missing data until it produces a fully imputed dataset. This process is then repeated several times to create multiple imputed

[11] Multivariate Normal Imputation specifies a joint distribution of the data, then estimates the parameters of this joint distribution and imputes missing values from this distribution.

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datasets which are used to estimate the model parameters and variances (White et al., 2011). While many standard texts suggest that a small number of imputed datasets (i.e., 3-5) is generally sufficient for conducting MICE, some suggest that using a larger number of datasets is preferable (White et al., 2011) and a convention of practice is to use 10 imputed datasets. Thus, the missing data from the datasets used in this chapter, as well as chapters five, six, and seven, were imputed using MICE and the associated analyses are estimated with 10 imputed datasets. Appendix A provides a list of the imputation models specified for each variable in each chapter.

Following recommendations for imputing data, the conditional imputation models for each dataset include a few additional independent variables that were not used in the analytic models (see Appendix A).[12] These additional variables improve the imputation. It is also important to note that, in line with recommended practice, both the independent and dependent variables were imputed. On its face, imputing the dependent variable could be seen as bad practice; however, failing to impute dependent variables leads to coefficients that are systematically biased downward, producing inappropriate imputations (Graham, 2009; White et al., 2011). Prior research has also demonstrated that model estimates do not change substantially when different imputation strategies were compared. For example, Young and Johnson (2010) found that three different imputation strategies—i.e., imputing the dependent variable, not imputing the dependent variable, and imputing the dependent variable but deleting the cases with missing values on the dependent variable—did not substantially change the direction, strength, or significance of the estimated model parameters.

[12] Including additional variables in the conditional imputation models allows for more accurate imputation while reducing the potential for biased estimations.

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Finally, there is no established convention for how much missing data is too much for MICE. While this determination is relatively subjective, each researcher must make this decision based on their data. For the data imputations and analyses in this and the following chapters, it was determined that any variable with more than 25 percent missing data would be imputed, but considered "potentially problematic". Then, the analytic models were estimated with and without these potentially problematic variables to see if their inclusion had any impact on the model parameters. It was determined that the inclusion of these variables did not change the direction, strength, or significance of any of the model parameters in any of the analyses. In addition, there were very few instances in which these variables were themselves significant. Thus, given that these variables were selected for their theoretical relevance, the results presented here—and in chapters five, six, and seven—are based on the full analytic models that included all relevant variables.

Results

Table 2 presents the summary statistics of the variables that are included in this chapter's analytic model. On average, each jail facility reported approximately four escapes and attempted escapes during the study period. Notably, there was considerable variation among the facilities in terms of the reported number of escapes and attempted escapes. The reported values of this variable have a range of 0-211, with a standard deviation of nearly 16. As expected, many of the facilities included in this sample were large with an average rated capacity of nearly 1,400. Again, though, there was substantial variation among these jails. The smallest jail facility/jurisdiction had a rated capacity of 24, while he largest had a rated capacity of 18,112. On average, the facilities were roughly 7 percent under capacity, though the percent capacity ranged from 16 to 365 percent.

The majority of facilities were operated by government agencies, with fewer than five percent being operated by private companies. Roughly one-fifth of the inmates were

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being held on behalf of other authorities, such as other counties, state departments of corrections, or federal agencies. There was an average of five inmates per correctional officer, compared with 27 inmates per other type of staff member. It is notable that more than half of the facilities were located in Southern states. This is not surprising given that the southern states included in this analysis have the largest total population compared to the other regions, though it is also possible that there were more large jail jurisdictions (which are oversampled in the 2011 ASJ) in the South than in other regions in the United States.

The demographic profiles of the jails indicated that most primarily held adult male offenders. On average, the facilities were comprised of 88 percent male inmates, while less than 1 percent of inmates were under the age of 18. The facilities were racially/ethnically diverse, with a mean ethnic heterogeneity measure of .44. In addition, most facilities did not contain a high proportion of noncitizens, although one facility (a detention center in the South) had an inmate population comprised of nearly 90 percent noncitizens. It is also clear from Table 2 that jail jurisdictions in the 2011 ASJ had highly transient inmate populations and experienced rapid inmate turnover. On average, more than half of the jails' inmate population was detained for seven or fewer days. Likewise, more than half of the inmates had not been convicted of a crime and were awaiting trial.

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Table 2. *Descriptive Statistics of Jail Factors (n=366)*

	Mean/Percent	Stand. Dev.	Min-Max	% Missing
# of escapes/attempted escapes	4.18	15.86	0-211	15.57
Rated capacity	1,395.47	1,857.77	24-18,112	.55
Percent capacity	92.97	29.43	16-365	1.09
Percent male	87.89	7.83	0-100	0
Percent juvenile	.85	1.74	0-20.18	3.01
Ethnic heterogeneity	.44	.18	0-.67	3.01
Percent short stay	52.60	25.27	0-100	34.97
Percent unconvicted	55.73	26.40	0-100	11.75
Percent turnover	27.80	19.60	0-133.86	3.28
Percent noncitizens	7.06	10.53	0-89.55	25.41
Inmate- correctional staff ratio	5.11	2.73	0-28.76	4.92
Inmate-other staff ratio	27.33	40.28	0-461.5	6.01
Percent from other authorities	21.94	27.13	0-100	4.92
Privately operated				0
No	95.63%	-	-	
Yes	4.37%	-	-	
Region				0
Northeast	14.48%	-	-	
Midwest	15.85%	-	-	
South	53.55%	-	-	
West	16.12%	-	-	

Jail Factors and Escapes/Attempted Escapes

Table 3 provides the results of the negative binomial regression model analyzing the impact of jails characteristics on the number of escapes and attempted escapes. The model was significant overall ($F=3.92$, $p<.001$), indicating that it fit the data well and improved one's ability to predict the reported number of escapes and attempted escapes. Still, despite the overall fit of the model, many of the individual independent variables included in the model were not significantly associated with the outcome.

Notably, the measure of the jail jurisdictions' rated capacity had a significant, inverse relationship with the reported number of escapes and attempted escapes ($p<.05$). It is important to reiterate that this model controlled for the jurisdiction's ADP as an exposure variable. In other words, relative to facilities with fewer inmates, larger jail jurisdictions reported experiencing fewer escapes and attempted escapes. The implications

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of this and the other findings presented in this chapter are discussed in greater detail in chapter eight.

Table 3 also indicates that ethnic heterogeneity is positively associated with the number of escapes ($p<.05$). Thus, as jail jurisdictions become more racially and ethnically diverse, they are more likely to experience escapes and attempted escapes, holding other variables constant. According to the incident rate ratio (IRR), each one-unit increase in ethnic heterogeneity increases the number of escapes and attempted escapes by a factor of 8.21. Further, despite the potential management concerns associated with incarcerating noncitizens, jails with a larger population of noncitizens reported significantly fewer escapes and attempted escapes ($p<.05$). In fact, for every one percentage point increase in the percent of noncitizens, the number of escapes and attempted escapes was expected to decrease by a factor of .96, holding all other variables constant.[13]

As indicated in Table 3, privately operated jails reported a significantly greater number of escapes and attempted escapes than publicly operated facilities ($p<.05$). According to the IRR, when a facility was operated by a private company, as opposed to a government agency, the number of reported escapes and attempted escapes was expected to increase by a factor of 4.27. In addition, jai jurisdictions in Southern states reported significantly fewer escapes and attempted escapes than jurisdictions located in the Northeast. None of the other jail characteristics were significantly associated with the reported number of escapes and attempted escapes from the jurisdiction.

[13] It is important to note that incident rate ratios (IRR) are more difficult to interpret than other measures of effect sizes, such as odds ratios, and the strength of the relationship from an IRR cannot be compared to an odds ratio. For example, while a value of .96 would indicate a weak relationship for an odds ratio, this may not be the same for an IRR of an equal value, as the IRR is based on a count outcome variable.

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Table 3. *Jail Factors Associated with the Number of Escapes/Attempted Escapes from Custody*

	Coef. (SE)	IRR
Rated capacity (logged)	**-.40(.16)***	**.67**
Percent capacity	-.01(00)	.99
Percent male	.01(.02)	1.00
Percent juvenile	.06(.06)	1.06
Ethnic heterogeneity	**2.11(.91)***	**8.21**
Percent short stay	.00(.01)	1.00
Percent unconvicted	-.00(.01)	1.00
Percent turnover	-.01(.01)	.99
Percent noncitizens	**-.04(.02)***	**.96**
Inmate- correctional staff ratio	-.08(.05)	.92
Inmate-other staff ratio	-.00(.00)	1.00
Percent from other authorities	-.01(.01)	.99
Privately operated		
No[a]		
Yes	**1.45(.71)***	**4.27**
Region		
Northeast[a]		
Midwest	-.43(.49)	.65
South	**-.84(.41)***	**.43**
West	.04(.52)	1.04
# of obs	366	
# of imputations	10	
F statistic	**3.92*****	

Note: *Average Daily Population* is the exposure variable
[a]Reference Category
†p<.10,*p<.05, **p<.01, ***p<.001

Chapter Conclusion

This chapter analyzed the impact of several jail-level characteristics on the outcome of interest (i.e., the number of escapes and attempted escapes). The jail level-characteristics included in this chapter's analysis primarily fit under the theoretical frameworks of the deprivation theory, the management perspective, and routine activities theory (particularly the element of capable guardianship). Overall, the findings from this chapter provide the most support for the management perspective. In particular, larger jail facilities operated by government agencies appear to be less susceptible to escapes and attempted escapes

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than other facilities. In addition, facilities that are less racially and ethnically diverse, as well as those with greater populations of noncitizens, reported significantly fewer escapes than other facilities. These findings suggest that jails administrators may be able to more easily manage facilities with these characteristics—at least in terms of preventing escapes and attempted escapes—than other types of facilities.

Still, it is important to point out that some of the null findings from this chapter do not support the management perspective. Variables such as inmate-to-correctional staff ratio, inmate-to-other staff ratio, percent short stay, percent turnover, percent unconvicted, and percent from other authorities are consistent with the main tenets of the management perspective but were not significant in the above analysis. Chapter eight provides a more thorough discussion of the theoretical and practical implications of these findings. The next chapter (chapter five) presents an analysis similar to the one presented here, but uses prison-level data rather than jail-level data.

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Chapter 5: Prison-Level Characteristics and Escape

The focus of this chapter is the degree to which prison characteristics are associated with the aggregate number of reported escapes and walkaways among these correctional institutions. As such, the results presented in this chapter seek to address the study's second research question. The remaining sections of this chapter detail 1) the methods employed for the analyses, including a description of the data, variables, and analytic technique used in the chapter, and 2) the results of these analyses. Concluding this chapter is a brief discussion of the findings, though a more thorough discussion of their implications for theory and practice is presented in chapter eight.

Methods

Data

The analyses in this chapter rely on data from the *Census of State and Federal Adult Correctional Facilities, 2005*, or "the prison census" (Bureau of Justice Statistics, 2006). This Bureau of Justice Statistics (BJS) data collection effort began in 1974 and has been conducted approximately every five years, although the 2005 census is the most recent census that is publicly available. The data collected in the prison census are similar to those of the *2011 Annual Survey of Jails* (ASJ), in that they include facility-level information on the prisons' physical security, age, functions, capacity, inmate population counts and demographics, inmate work assignments, and incidents of misconducts. Unlike the 2011 ASJ, which aggregated jail facilities to the local jurisdiction level, the prison census' unit of analysis is the facility. Questions on the prison census use the reference period of January1, 2005 through December 30, 2005.

The prison census included all facilities that: 1) were physically, functionally, and administratively separate from other facilities; 2) housed inmates primarily for state or federal authorities; 3) were staffed with federal, state, local, or private employees; and 4)

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were operational on December 30, 2005. This included all types of adult state and federal correctional facilities, such as prisons, farms, camps, reception/classification centers, youthful offender facilities, training facilities, and treatment facilities, as well as state-operated local detention facilities in states with integrated correctional systems (i.e., Alaska, Connecticut, Delaware, Hawaii, Rhode Island, and Vermont), for a census of N=1821 facilities. The prison census counted all inmates held in these prison facilities, but did not include state and federal inmates who were under a state or federal correctional authority's jurisdiction but housed in a locally operated jail or detention facility. Every state and federal correctional authority in the United States participated in the 2005 prison census, except for the Illinois Department of Correction (IDOC). However, BJS estimated data for Illinois' facilities using data from the previous iteration of the prison census and information reported on IDOC's website.

Variables

Dependent variables: This chapter will use two different items from the prison census as dependent variables: the *Number of Escapes* and the *Number of Walkaways*. Both of these outcome variables represent the number of incidents that each prison experienced during the study's reference period. As defined by the prison census, the number of escapes represents the number of inmates who escaped from a prison with a secure perimeter (defined below), while the number of walkaways represents the number of inmates who "walked away" from any prison while they were under community custody or who fled from a prison while on a work detail, work release, medical appointment, court appearance, or furlough. The number of walkaways, then, included incidents often categorized as "AWOLs" or "failure to returns" in addition to incidents more commonly known as "walkways."

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Independent variables: As in the previous chapter, the variables used in this chapter are all measured at the facility-level. Thus, they are most theoretically relevant to the deprivation model, the management perspective, and routine activities. Many of the independent prison-level variables in this chapter are similar to the jail-level variables described in chapter four. The variables *Rated Capacity*, *Percent Capacity*, *Percent Male*, *Percent Noncitizens, Ethnic Heterogeneity,* and *Region* are all measured the same way as they were for chapter four's jail-level analyses.

Other variables, though similar, were not measured the same way as they were in chapter four due to differences in the prison census's data collection. For example, in this chapter, inmate to staff ratio was divided into four variables: *Inmate-Male Correctional Staff Ratio*, *Inmate-Female Correctional Staff Ratio, Inmate-Male Treatment Staff Ratio,* and *Inmate-Female Treatment Staff Ratio.*[14] Two binary variables, *Primarily Youthful Offenders* and *Inmates from other Authorities* indicate, respectively, whether a facility primarily held youthful offenders[15] and whether it housed any inmates on behalf of another authority (e.g., prisoners from another state or from a federal agency). In addition, *Operator* indicates whether the prison was operated by a state government agency, a federal government agency, or a private company. Finally, *Percent Unsentenced* is the percentage of prisoners who were in the prison but were not sentenced, and *Percent Short Sentence* is the percentage of prisoners who were serving a sentence of one year or less; both of these variables have implications for the prisons' population turnover.

[14] These variables allow for the examination of the degree to which the gender of correctional and treatment staff impacts the number of escapes in a facility. This gendered examination has not been explored in prior research.

[15] The definition for "youthful offenders" is not provided in the prison census' codebook; however, since this data collection effort focused only on adult facilities, "youthful" offender likely refers to young adults ages 18 to 25, although in some states this could also include individuals who are under 18 but are housed in an adult prison.

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While some of the variables in the prison census are similar to those found in the 2011 ASJ, there are several that were unique to this dataset. Several variables provide information about the conditions of the facility. For example, the *Security Level* of the facility includes the following categories: minimum/low, medium, and maximum/supermax. A related variable is *Secure Perimeter*, which is a binary measure of whether there was a secure perimeter around the facility, including either barriers (i.e., fences or walls) or surveillance methods (i.e., guard towers, perimeter patrols, or electronic monitoring), intended to prevent inmates from leaving the facility.[16] *Age of the Facility* is measured as the number of years between the facility's construction and the prison census' data collection. Finally, *Court Order* is a binary indicator of whether the facility was under a court order for conditions of confinement at the time of the prison census' data collection.

Other variables unique to the prison census provide information about the facilities' programming and treatment options for inmates. As discussed in chapter two, findings from extant literature suggest that treatment options may have an effect on inmates' decision to escape. *Percent on Work Assignment* is the percentage of inmates in the prison who were assigned to work inside the facility (e.g., in the kitchen or laundry room, or for some type of prison industry), while *Percent on Work Release* denotes the percentage who were allowed to leave the facility on a regular basis for work release. A similar variable, *Inmates Permitted to Leave*, is a binary indicator of whether the facility allowed inmates to leave the facility unaccompanied to study, participate in a rehabilitative program, or work. Two other dichotomous variables indicate whether a primary function of the facility was to offer *Alcohol or Drug Treatment* and/or *Mental Health Treatment*. Likewise, *Number of Programs* signifies the total number of educational and treatment-oriented programs

[16] While this variable is related to the security level of a facility, they do not completely overlap. For example, some low/minimum security institutions have a secure perimeter while others do not.

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offered in the facility, including literacy training, secondary education, vocation or college courses, psychological counseling, parenting classes, etc.

Analytic Technique

Like the previous chapter, the dependent variables in this chapter, the number of escapes and number of walkaways from each facility, follow a count distribution. As explained in the previous chapter, it is important to first determine if Poisson regression or negative binomial regression is more appropriate for these data. Based on the distribution of the dependent variables in Table 4 below (page 79), it appears that the standard deviations are much larger than the means of the dependent variables. This indicates that the data are overdispersed. Again, this inference was confirmed by the likelihood ratio test of the overdispersion parameter (i.e., the likelihood ratio test statistic for escapes = 46.77, $p<.000$; and for walkaways = 1689.61, $p<.000$). Thus, the analyses in this chapter also use negative binomial regression. These analyses also include the facilities' average daily population (ADP) as the exposure variable.

Results

Table 4 below (page 79) provides the descriptive statistics of the variables that are included in the current chapter's analytic models. On average, prisons experienced more walkaways than escapes during the study period (4 compared to .28, respectively). The range of values among these outcomes was quite large. Administrators from one prison reported 44 escapes during the study period, while another prison experienced 780 during this time.

The average age of the prisons was 33 years at the time of data collection. Notably, some of the prisons were very new (the minimum age was "0"), while one facility was built in 1811 (194 years prior to data collection). There was also considerable variation in the size of the prisons, with an average rated capacity of nearly 730 inmates and a range from 4 to

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7,062. Unlike the jails described in the previous chapter, the facilities in the prisons census were, on average, over capacity. The average prison was at 102.36 percent capacity, with a sizeable standard deviation of about 57.

The demographic composition of these prisons indicates that the majority held male prisoners. The average prison contained 87 percent male inmates, although most of the facilities held either only male or only female prisoners. Despite the fact that the prison census only included adult prisons, more than one-third of the facilities held primarily youthful offenders. The prisons were also more ethnically and racially diverse than the jails described in the previous chapter. The average ethnic heterogeneity score was .50, with a range from 0 to .67. In addition, the average prison housed very few noncitizens, even though this variable ranged from 0 to 100 percent.

Given that prisons typically house individuals who are serving sentences of more than one year, it is not surprising that prisons in this dataset tended to have more stable populations and experience less turnover than the jails described in the previous chapter. On average, fewer than thirteen percent of the prisoners were serving "short" sentences of one year or less and only about two percent were not in prison serving a sentence.

Many of these prisons appear to have offered a range of program and service options. On average, each prison offered nine different educational or treatment-oriented programs to their inmate populations. Similarly, a primary function in one-fifth of the prisons was to offer alcohol or drug treatment, followed by one-tenth with a primary function of providing mental health treatment. Further, more than two-thirds of the inmates were on some sort of institutional work assignment. While the average prison provided work release for only 16 percent its inmate population, approximately 43 percent of the prisons allowed inmates to leave the facility unaccompanied to study, participate in a rehabilitative program, or work. Despite the array of services and programs offered to inmates, twelve percent of the

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prisons were under a federal court order for the conditions of confinement at the time of data collection.

The facilities in the prison census have smaller inmate to staff ratios than the jails that participated in the 2011 ASJ. There was an average of 9 prisoners per male correctional officer, compared with 32 per female correctional officer, and 56 prisoners per male treatment staff member, compared with 51 per female treatment staff member. Thus, while there appears to be more male correctional officers than female officers, there were also females than males employed as treatment staff.

The majority of the prisons, more than 53 percent, were classified as minimum or low security. Still, administrators from more than two-thirds of the prisons reported having a secure perimeter around their facility. The majority of facilities in the prison census were operated by a state government (72 percent), followed by private companies (23 percent) and federal authorities (5 percent). Like the jails described in the previous chapter, the largest geographic region in the United States—the South—also contained more prisons (43 percent) than the Northeast (18 percent), Midwest (20 percent), or West (19 percent) in 2005.

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Table 4. *Descriptive Statistics of Prison Factors (n=1821)*

	Mean/Percent	Stand. Dev.	Min-Max	% Missing
Number of escapes	.28	1.89	0-44	35.69
Number of walkaways	4.00	26.57	0-780	9.83
Age of the facility	33.30	31.47	0-194	11.26
Rated capacity	729.19	809.82	4-7062	3.02
Percent capacity	102.36	56.96	6.88-2202.45	3.40
Percent male	87.25	30.67	0-100	.44
Primarily youthful offenders				0
No	64.85%	-	-	
Yes	35.15%	-	-	
Ethnic heterogeneity	.50	.11	0-.67	8.62
Percent short sentence	12.35	27.10	0-100	26.14
Percent unsentenced	2.16	9.35	0-100	33.11
Percent noncitizens	4.14	9.73	0-100	7.80
Percent on work assignment	67.69	32.55	0-100	19.71
Percent on work release	16.33	33.45	0-100	9.45
Number of programs	9.01	4.48	0-18	0
Inmate-male corr. staff ratio	9.02	8.08	0-111.5	7.30
Inmate-female corr. staff ratio	31.65	39.93	0-456	7.30
Inmate-male treat. staff ratio	56.01	58.84	0-621	19.44
Inmate-female treat. staff ratio	50.75	53.77	0-716.5	18.78
Alcohol or drug treatment				0
No	80.67%	-	-	
Yes	19.33%	-	-	
Mental health treatment				0
No	89.35%	-	-	
Yes	10.65%	-	-	
Inmates from other authorities				17.08
No	78.54%	-	-	
Yes	21.46%	-	-	
Court order				.44
No	87.98%	-	-	
Yes	12.02%	-	-	
Inmates permitted to leave				0
No	57.39%	-	-	
Yes	42.61%	-	-	
Secure perimeter				6.64
No	31.88%	-	-	
Yes	68.12%	-	-	
Security level				0
Minimum/low	53.21%	-	-	
Medium	26.36%	-	-	
Maximum/Supermax	20.43%			
Operator				0
State	71.61%	-	-	
Federal	5.60%	-	-	
Private	22.79%	-	-	

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Region				0
Northeast	18.07%	-	-	
Midwest	19.60%	-	-	
South	43.22%	-	-	
West	19.11%	-	-	

Prison Factors, Escapes, and Walkaways

Table 5 below (page 84) provides the results of the two negative binomial regression models in which both escapes and walkaways are regressed on the aforementioned prison-level independent variables. The escape model in which the number of escapes was the dependent variable was significant overall ($F=16.79$, $p<.001$), indicating that the included independent variables significantly improved one's ability to predict how many escapes would occur in a facility. Still, only a few of the independent variables were significantly associated with the outcome. Conversely, the second model, in which the number of walkaways was the outcome, was also significant overall ($F=36.15$, $p<.001$), but had many more significant independent variables.

Some findings were consistent across both models. The prisons' rated capacity, for example, had a negative relationship with both the number of escapes and the number of walkaways ($p<.001$). This is similar to the findings in chapter four, which indicated that larger jail jurisdictions reported experiencing fewer escapes and attempted escapes than smaller jurisdictions. Confirming that finding, the size of a prison appears to be inversely associated with the number of escapes and the number of walkaways, holding all other variables constant. This finding remains despite the fact that the facilities' average daily population was included in both models as an exposure variable.

Another variable, the percent of inmates on work release, was positively associated with both the number of escapes ($p<.01$) and the number of walkways ($p<.001$). Each percentage point increase in the percent of inmates on work release increased the number

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of both outcomes by a factor of 1.02, holding all other variables constant. While it is not surprising that the percentage of inmates on work release was associated with the number of walkaways (since a greater percentage of inmates on work release would provide greater opportunity for inmates to "walkaway", as defined in the prison census), it is notable that this variable was also positively associated with the number of escapes.

The results of the two models indicate that two independent variables had opposing effects on the different outcomes. First, whether a facility was under a court order at the time of data collection had a significant, negative relationship with the number of escapes ($p<.05$), but a positive relationship with the number of walkways ($p<.001$). One possible explanation for these opposing results is that the additional scrutiny of being under a court order may have impacted prison policies or practices enough to reduce the number of escapes, while the underlying reasons for the court order (i.e., poor conditions of confinement) created an environment in which inmates were able to walk away. These results are revisited and discussed in greater detail in chapter 8.

The second variable with opposing effects was the presence of a secure perimeter around the prison, which increased the number of escapes by a factor of 2.44 ($p<.05$), but decreased the number of walkaways by a factor of .35 ($p<.001$). At first, this finding seems contrary to expectations: One might expect that a secure perimeter—such as fences, walls, guard towers, etc.—would reduce the opportunity of escaping while having minimal effect of the number of walkaways (since, in the prison census, these incidents include inmates who fled from custody during an offsite medical visit, court date, or work release). However, upon further examination, it appears as though this finding may be, at least in part, an artifact of the prison census' definition of "escapes". Specifically, the prison census defined escapes as occurring from facilities *with* secure perimeters. Thus, although some of the facilities without a secure perimeter had at least one escape, it is likely that many officials

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only counted incidents as ”escapes” if they occurred from facilities that had a secure perimeter and categorized most incidents from facilities without a secure perimeter as “walkaways”. Accordingly, the secure perimeter measure may have been directly related to whether an incident was categorized as a walkaway or an escape.

Several other independent variables were only significant in one or another of the two models. For instance, none of the demographic characteristics of the facilities' inmate population were associated with the number of escapes, but the percent of the population that was male significantly increased the number of walkways ($p<.01$). Likewise, similar to the findings of jail characteristic reported in chapter four, prisons with a larger population of noncitizens reported significantly fewer walkways ($p<.05$), although this relationship was not found in the model of escapes. Percent capacity was also only significantly associated with the number of walkways ($p<.05$), indicating that more crowded prison may have actually experienced fewer walkways.

In addition, while none of the measures of staff-to-inmate ratios was related to the number of escapes, there was some indication that the ratio of correctional staff to inmates impacted the number of walkaways. However, the direction of this relationship is not clear as the ratio of female correctional staff to inmates significantly reduced the number of walkaways ($p<.01$), while the ratio of male correctional staff increased the number of these incidents (although this relationship only approached statistical significance).

Not surprisingly, whether prisons permitted inmates to leave the facility unaccompanied by staff was significantly, positively associated with the number of walkways ($p<.001$). Again, this is likely a result of the definitions used in the prison census because “walkaways” included incidents where inmates failed to return from authorized releases from the facility. Two additional indicators—whether prisons provided alcohol or drug treatment, and whether they housed inmates from other authorities—were also

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positively associated with the number of walkways ($p<.05$). Finally, the region in which the prisons were located was only associated with walkways and did not impact the number of reported escapes. Prisons in the Midwest ($p<.01$), South ($p<.001$), and West ($p<.05$) were less escape-prone than those in the Northeast.

Two variables were associated only with escapes: the security level of the facility and the facility's operator. Consistent with expectations, both medium security ($p<.05$) and maximum security ($p<.01$) facilities experienced fewer escapes than minimum/low security facilities. Additionally, there was some indication that facilities operated by a private company experienced more escapes than those operated by a state or federal government agency, but this relationship only approached statistical significance ($p<.10$).

Many of the other variables included in these two models did not significantly impact either outcome. Variable such as the age of the facilities, the facilities' racial and ethnic diversity (ethnic heterogeneity), the percentage of inmates who were not serving a sentence or who were serving short sentences, and the number of educational and treatment-oriented programs offered to inmates, among other variables, were not significantly related to either the number of escapes or the number of walkaways.

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Table 5. *Prison Factors Associated with the Number of Escapes and Walkaways from Custody*

	Escapes		*Walkaways*	
	Coef. (SE)	IRR	Coef. (SE)	IRR
Age of the facility	.01(.00)	1.01	.00 (.00)	1.00
Rated capacity (logged)	**-1.01 (.20)*** **	**.36**	**-.54(.12)*** **	**.58**
Percent capacity	-.01 (.00)	.99	**-.01(.00)***	**.99**
Percent male	.00(.01)	1.00	**.01(.00)** **	**1.01**
Primarily youthful offenders				
No[a]				
Yes	-.22(.49)	.68	.09(.26)	1.09
Ethnic heterogeneity	1.36 (1.16)	3.90	-.31(.70)	.58
Percent short sentence	-.01 (.01)	.99	.00(.00)	1.01
Percent unsentenced	-.00 (.02)	1.00	.00(.01)	1.00
Percent noncitizens	-.03 (.02)	.98	**-.02(.01)***	**.98**
Percent on work assignment	.-00 (.01)	1.00	**-.01(.00)***	**.99**
Percent on work release	**.02 (.01)** **	**1.02**	**.01(.00)*** **	**1.02**
Number of programs	-.06(.04)	.95	-.01(.03)	.99
Inmate-male corr. staff ratio	.03(.03)	1.03	**.03(.01)†**	**1.03**
Inmate-female corr. staff ratio	.00 (.01)	1.00	**-.01(.00)** **	**.99**
Inmate-male treat. staff ratio	.00(.00)	1.00	-.00(.00)	1.00
Inmate-female treat. staff ratio	.00(.00)	1.00	-.00(.00)	1.00
Alcohol or drug treatment				
No[a]				
Yes	-.22(.30)	.80	**.51(.19)** **	**1.51**
Mental health treatment				
No[a]				
Yes	. 27(.53)	1.31	.04(.19)	1.0
Inmates from other authorities				
No[a]				
Yes	-.02(.35)	.98	**.75(.24)** **	**2.10**
Court order				
No[a]				
Yes	**-1.04(.40)***	**.35**	**.95(.25)*** **	**2.59**
Inmates permitted to leave				
No[a]				
Yes	.55(.51)	1.74	**1.94(.39)*** **	**6.96**
Secure perimeter				
No[a]				
Yes	**.89(.34)***	**2.44**	**-1.05(.23)*** **	**.35**
Security level				
Minimum/low[a]				
Medium	**-98(.42)***	**.38**	-1.99(.35)	.82
Maximum/Supermax	**-1.48(.44)** **	**.23**	-.58(.35)	.56
Operator				
State[a]				
Federal	-17.95(10127)	.00	.29(.56)	1.36
Private	**.97(.52)†**	**2.63**	.10(.27)	1.11

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Region				
Northeast[a]				
Midwest	.32(.44)	1.38	**-.72(.27)****	**.49**
South	.22(.31)	1.24	**-1.13(.24)*****	**.32**
West	**.66**(.42)	1.94	**-.63(.30)***	**.53**
# of obs	1821		1821	
# of imputations	10		10	
F statistic	**16.79*****		**36.15*****	

Note: *Average Daily Population* is the exposure variable
[a]Reference Category
†p<.10,*p<.05, **p<.01, ***p<.001

Chapter Conclusion

This chapter described the relationships between several prison-level characteristics and two outcomes: the number of escapes and the number of walkaways. Following the previous chapter, the prison-level characteristics included in this chapter were derived from the deprivation model, the management perspective, and routine activities theory. In addition, these analyses included a few variables that fit under the situational crime prevention framework (e.g., inmates permitted to leave, secure perimeter, and security level). The findings presented in this chapter provided some support for each of these theories, suggesting that an integrated theoretical approach for understanding escapes and walkaways from prison is best.

Distinguishing between walkaways and escapes also appears to be important for improving the field's theoretical understanding of these processes. For example, as indicated by the rated capacity, the size of the facility (an important measure under the management perspective) was negatively associated with both the number of escapes and the number of walkaways. However, percent capacity and the measures of inmate-to-correctional staff ratio (variables commonly used in deprivation studies) were only significant in the analysis of walkaways (and in some instances, in the direction opposite to

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expectations). Thus, there appears to be a more nuanced theoretical understanding of both escapes and walkaways. These relationships are explored in greater detail in chapter eight, which also examines into the implications of these findings for policy and practice.

The following chapter—chapter six—presents the final analysis of the factors associated with escaping from custody. Unlike the current and previous chapters, chapter six explores the degree to which individuals' demographic and criminal history characteristics are associated with their escape behavior.

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Chapter 6: Individual-Level Characteristics and Escape

This chapter examines the degree to which individual-level characteristics of inmates are associated with their escape behavior. Thus, the results in this chapter address the current study's third research question. This chapter is divided into three sections. The first section describes the method employed for the analyses, including a description of the data, comparison group, dependent and independent variables, and analytic technique used in the chapter. The second section presents the results of these analyses. Finally, this chapter's conclusion offers a brief discussion of these findings, although a more thorough discussion of the implications for research and practice is provided in chapter eight.

Methods

Data

The focus of this chapter is on the individual characteristics that are associated with escaping from custody. As such, the analyses in this chapter will use data from the 2008 and 2009 iteration of the *National Corrections Reporting Program* (NCRP). The NCRP began in 1983 when the Bureau of Justice Statistics (BJS) combined two of its data collections efforts, the National Prisoners Statistics program and the Uniform Parole Reports, into a single reporting system. The NCRP compiles yearly descriptive data on prisoners entering or leaving the custody or the supervision of state and federal authorities. Both the 2008 and 2009 NCRP are comprised of four distinct datasets: individuals who were admitted to prison (N_{2008} = 562,239; N_{2009} = 534,668); individuals who were released from prison (N_{2008}=566,342; N_{2009}=546,201); individuals who were released from parole (N_{2008} = 276,373; N_{2009} = 277,140); and individuals who were in prison at year-end (N_{2008} = 931,946; N_{2009} = 950,268). Combined, the 2008 and 2009 iterations of the NCRP cover the period of January 1, 2008 through December 31, 2009.

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Though sponsored by BJS, the 2008 and 2009 NCRP data were collected by the U.S. Bureau of the Census, who also assembled and processed these data for analysis and publication. NCRP data were provided to the U.S. Bureau of the Census by state and federal authorities. These authorities were asked to provide individual-level data on all persons under their immediate control, regardless of the jurisdiction in which the prisoners or parolees were originally sentenced. For example, a state prisoner who was housed in a local jail facility at the time of data collection would have been included in that state's NCRP data. In both 2008 and 2009, the NCRP included data from 31 state departments of corrections, as well the California Youth Authority.

Comparison Group Construction

Because BJS counted escape from prison as a type of "release", the analyses in this chapter rely on the NCRP dataset containing individuals who were released from prison. The 2008 and 2009 NCRP data include all inmates who were reported by participating states as "escapees" during the study period. There were many challenges, however, in constructing an appropriate comparison group for this group of escapees. For instance, it was not feasible to create a comparison group from the dataset containing individuals who were in prison at year end (i.e., the "stock population") because these data did not include many of the variables that were found in the release dataset, such as information on prisoners' sentence length and percent of sentence served. Further, some of the states that provided release data did not provide data on their stock populations, making it impossible to create a comparison group with the same states as the group of escapees.

Thus, it was decided that the comparison group should also be drawn from the release dataset. Still, the release data also posed several challenges for the current analysis. One issue was that escapes from prison accounted for less than 0.10 percent of the releases from prison in 2009 and less than 0.25 percent of the releases in 2008. The NCRP

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also included natural deaths, homicides, suicides, executions, and transfers as types of release from prison. As such, merely comparing "escapes" to all other types of releases would not be meaningful. In addition, it was found that escapes were highly concentrated in some states. Alabama, for example, accounted for 75 percent of the escapes in 2009.[17]

To address these issues, the comparison group only included conditional releases, such as onto parole or probation, or releases upon the expiration of prisoners' sentence. Matching on state and year, a random sample of these types of releases was drawn from the total sample of releases using a 3:1 matching process. For example, the 40 escapees reported in California in 2009 were matched to 120 randomly selected conditional or mandatory releases from California prisons during the same year. This resulted in an analytic file containing 1,334 escapes and 4,002 other releases in 2008, and 491 escapes and 1,473 other releases in 2009 for a total sample size of N=7,300 escapes and other types of releases from prison.

Variables

Dependent variable: As described above, the dependent variable in this chapter is the *Type of Release* from prison, which is a dichotomous measure of whether an inmate's release from prison was classified as an escape or another type of release (i.e., a conditional release, such as onto parole or probation, or an expiration of the inmate's sentence). In this way, inmates who escaped in 2008 and 2009 were compared with inmates who were released from prison for some other reason. The NCRP definition of "escapes" encompasses all unauthorized absences from custody, including incidents that are otherwise often categorized as "failures to return" and "walkaways".

[17] After examining the NCRP codebook and published reports using NCRP data, it is still not clear why some states reported much higher numbers of escapes than other states. One possible explanation is that, despite the definition of escape provide by BJS in the NCRP survey instrument, states may have used their own definitions of "escape" and thus reported different numbers for this type of release.

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Independent variables: The independent variables used in this chapter are measured at the individual-level. Individual-level variables are particularly well-suited for testing the importation model, as well as routine activities theory (especially in terms of offender motivation). As such, many of the independent variables are demographic characteristics of the inmates, such as inmates' *Age* (measured in years), *Sex* (male or female), *Race* (white or nonwhite), and *Education* (indicating whether an inmate received a high school diploma/GED). There are also several measures of inmates' prior criminal justice involvement and offense history. Two variables, *Prior Prison Time* and *Prior Jail Time*, indicate the number of months for which inmates were incarcerated for prior offenses.[18] *Prior Escape* is a dichotomous variable indicating whether an inmate was previously convicted of escape.[19] *Current Offense* specifies the category of offense for which an inmate was in prison, including a violent, property, drug, or public order/other offense.[20] *Counts of Current Sentence* is the total count of the offenses for which an inmate was in prison.

Additionally, *Sentence Length* is measured in months and represents the total maximum sentence for which inmates were in prison[21], while the *Percent of Sentence Served* represents the percent of the maximum sentence that inmates had served at the

[18] Both of these variables were logarithmically transformed in the analyses to improve the normality of their distributions.
[19] Because NCRP data do not have extensive criminal history information, this variable does not account for whether an inmate had ever been charged or convicted of an escape; rather, this variable merely indicates whether any of the offenses for which an inmate was currently in prison were categorized as "escape".
[20] In cases where inmates were in prison on multiple offenses, the offense that resulted in the longest sentence was used. Violent offenses include: murder, homicide, manslaughter, kidnapping, rape, sexual assault, robbery, armed robbery, assault, aggravated assault, etc. Property offenses include: burglary, arson, theft, larceny, forgery, fraud, embezzlement, destruction of property, receiving stolen property, trespassing, etc. Drug offenses include: trafficking, possession, or use of controlled substances. Public order/other offenses include: weapons offenses, parole and probation violation, habitual offender offenses, contempt of court, traffic offenses, DUIs, disorderly conduct, morals and decency offenses, immigration violations, obstruction, invasion of privacy, vice offenses, liquor law violations, and statutory offenses.
[21] Life sentences (which were less than one percent of all reported sentences cases) were recoded as 1260 months, as that was the highest reported numeric value in this sample of NCRP data.

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time of their escape/release (i.e., time served divided by sentence length, multiplied by 100).[22] *Community Release Prior* is a dichotomous indicator of whether an inmate was under community-based supervision or placement, such as a work furlough, prior to their escape/release from prison. *Facility Released from* is a categorical variable indicating the type of facility from which the inmate escaped/was released, including state prisons, work release centers or halfway houses, and local jails (in cases where local jails had contracts to house state or federal inmates). *Season* in which the escape/release from prison occurred includes the following categories: winter (December-February), spring (March-May), summer (June-August), or fall (September-November). Finally, several variables were created to control for the year of the escape/release (2008 or 2009), as well as the state from which the escape/release occurred.

Analytic Technique

The dependent variable in this chapter, the type of release from prison, is a dichotomous categorical outcome. Logistic regression is an appropriate and popular model for measuring the relationship between a dichotomous dependent variable and multiple independent variables. Probit regression is comparable to logistic regression, and both probit and logistic models can be used for similar purposes and produce similar results. However, logistic regression is more common in criminal justice research and is generally easier to interpret as its model coefficients can be presented as either log odds or odds ratios (the exponentiated model coefficients). Thus, this chapter uses logistic regression and presents both the log odds and odds ratio.

[22] Both of these variables were logarithmically transformed in the analyses to improve the normality of their distributions.

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Results

The descriptive statistics of the independent and dependent variables included in this chapter's analytic model are presented in Table 6. As a result of the creation of the comparison group, one-quarter of the inmates included in this sample were escapees in 2008 or 2009, while the remaining inmates were released from prison for some other reason, such as on to parole or probation, or after the expiration of the their sentence. A little over half of all the inmates where white, 87 percent were male, and 60 percent did not have a high school diploma. Further, the average age of the inmates in this sample was roughly 35 years, although their ages ranged considerably from 17 years to 82 years.

The inmates in this sample also had varied histories of criminal involvement. On average, they had spent five and a half months in jail and 15 months in prison on prior criminal offenses. Fewer than two percent of all of the inmates had a history of escape convictions. Approximately 37 percent of inmates were in prison for a property crime, followed by 34 percent for drug crimes, 19 percent for violent crimes and 12 percent for public order crimes. The inmates also had an average of nearly 2 counts on their current sentence, with a range of 1 to 14.

Inmates' average sentence length was nearly seven years (82 months), with a range of one month to 1260 months (105 years). However, inmates only served an average of one-third of their sentences before they were released or escaped from prison. It is notable that the range of the percent served variable was 0 to 1,017. While it is impossible to ascertain exactly why this variable has such a large range, it is likely that some of the inmates who had served only a very small percentage of their sentences had either escaped immediately after beginning their sentence, or were part of "shock probation" programs in which, after very brief stays in prison, their sentences were suspended in favor of probation. Conversely, some inmates may have served more than 100 percent of their original sentence as a result

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of additional crimes committed during incarceration or other cases that were pending prosecution as the inmate entered prison. It is also possible that this range is the result of error in these administrative data.

Almost eight percent of all inmates were on a community release, such as a work assignment or furlough, prior to their release or escape from prison. However, less than one percent of all inmates were released or escaped from a facility categorized as a work release center or halfway house prior to their release/escape, compared with more than 97 percent who were release/escaped from a state prison and less than two percent who were release/escaped from a jail. Finally, the releases and escapes occurred relatively proportionally across each of the seasons.

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Table 6. *Descriptive Statistics of Inmate Characteristics (n=7300)*

	Mean/Percent	Stand. Dev.	Min-Max	% Missing
Type of release				0
Other release	75%	-	-	
Escape	25%	-	-	
Race				.62
Nonwhite	48.04%	-	-	
White	51.96%	-	-	
Sex				0
Female	13.32%	-	-	
Male	86.68%	-	-	
Education				28.11
No high school diploma	59.79%	-	-	
High school diploma	40.21%	-	-	
Age	35.49	10.17	17.3-82.3	0
Prior jail time in months	5.64	7.81	0-114.8	6.11
Prior prison time months	15.01	34.91	0-296.5	5.45
Prior escape				.19
No	98.15%	-	-	
Yes	1.85%	-	-	
Current offense				.15
Violent	18.89%	-	-	
Property	36.84%	-	-	
Drug	32.54%	-	-	
Public order/other	11.73%	-	-	
Counts of current sentence	1.81	1.32	1-14	14.22
Sentence length in months	82.15	100.02	1-1260	1.74
Percent of sentence served	32.78	39.07	0-1017.5	8.22
Community release prior to release				12.07
No	92.49%	-	-	
Yes	7.51%	-	-	
Facility released from				1.10
State prison	97.66	-	-	
Work release/halfway house	.78	-	-	
Jail	1.57	-	-	
Season				0
Winter	24.79	-	-	
Spring	27.53	-	-	
Summer	24.99	-	-	
Fall	22.68	-	-	

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Individual Characteristics and Escape Behavior

Table 7 (page 98) displays the results of the logistic regression model examining how inmate-level characteristics are associated with whether an inmate was an escapee. In addition to the previously described independent variables, the model below also included dummy variables for the year (2008 vs 2009) and the state (including Alabama, Arkansas, California, Maryland, Michigan, Missouri, Nebraska, New York, North Carolina, North Dakoda, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, and Wes Virginia) in which the escape or release occurred. These dummy variables are not shown in Table 7.

The overall model was significant ($F=29.93$, $p<.001$). Further, several of the inmates' demographic characteristics were significantly associated with whether a release was an escape or some other type of release. White inmates were significantly less likely to have been escapees in this sample than nonwhites ($p<.05$), such that the odds of being white were 14 percent less than being a race other than white. The odds of being an escapee were 1.5 times higher for males than for females ($p<.001$). Age also appears to have an inverse relationship with escape behavior ($p<.01$); each year that an offender aged was associated with a one percent decrease in the odds of being an escapee.

Many of the indicators of inmates' criminal histories were significantly associated with escaping from prison. For example, inmates with longer histories of involvement in the criminal justice system, indicated by the number of months previously spent in prison ($p<.001$) and jail ($p<.01$), were more likely to have escaped from prison than other inmates. Additionally, the odds of inmates with a history of escape engaging in additional escape behavior were 2.7 times larger than the odds of inmates escaping with no history of escape ($p<.001$).

One could infer from these findings that inmates with more extensive criminal histories were more likely to have been escapees than other inmates. However, not all of

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the results are consistent with this inference. For instance, each additional count on the offenders' current sentence was significantly associated with a ten percent decrease in the odds of being an escapee. Escapees were also significantly more likely to have committed a property crime relative to a violent offense ($p<.001$).

Sentence length was significantly, negatively associated with escape behavior ($p<.001$). Thus, inmates with longer sentences were *less* likely to have been escapes than inmates with shorter sentences. While this finding is contrary to expectations, it is important to point out that NCRP data did not include an indicator of the security level of the facility from which the release or escape occurred. In other words, there may have been a spurious relationship between sentence length and escaping such that inmates with longer sentences were actually placed in more secure (i.e., medium or maximum) facilities than inmates with shorter sentences. As indicated in chapter five, medium and maximum security facilities experience significantly fewer escapes than low or minimum security facilities.

Still, while there was no direct measure of the facility's security level, the indicator of whether the inmate was on community release prior to their release or escape from prison was strongly associated with escape ($p<.001$). In fact, the odds of being an escapee were 168 times larger for inmates who were on community release than for inmates who were not. The inclusion of this indicator may have also accounted for why *Facility Released From* (i.e., work release/halfway house and local jails compared to state prisons) was not significant in the model.

Further, the percent of the sentence served was negatively associated with escape behavior ($p<.001$), indicating that inmates were more likely to escape earlier in their sentences. This finding is consistent with the expectations that inmates would have more motivation to escape early in their sentences rather than escaping near the completion of

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their sentence and face additional prison time. However, one should be cautious in this interpretation because the comparison group consisted of inmates who were released for some other reason (i.e., conditional release or expiration of sentence) during the study years. Thus, one would expect, simply as a result of the data construction, that inmates in the comparison group had served a greater percentage of their sentences than the escapees.

Finally, the season in which the inmates were released appears have had an impact on whether the release was an escape or another type of release. Relative to winter, escapes were more likely to have occurred in the spring ($p<.001$), but less likely to have occurred in either the summer ($p<.001$) or the fall ($p<.001$).

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Table 7. *Individual Factors Associated with Escapes from Custody*

	Coef. (SE)	Odds Ratio
Race		
Nonwhite[a]		
White	**-.15(.07)***	**.86**
Sex		
Female[a]		
Male	**.41(.11)*****	**1.50**
Education		
No high school diploma[a]		
High school diploma	-.15 (.09)	.86
Age	**-.01(.00)****	**.99**
Prior prison time in months (logged)	**.37(.03)*****	**1.44**
Prior jail time in months (logged)	**.12(.04)****	**1.13**
Prior escape		
No[a]		
Yes	**.99(.27)*****	**2.70**
Current offense		
Violent[a]		
Property	**.35(.10)*****	**1.42**
Drug	-.14 (.10)	.87
Public order/other	-.16(.14)	.85
Counts of current sentence	**-.11 (.03)*****	**.90**
Sentence length in months (logged)	**-.27(.05)*****	**.77**
Percent of sentence served (logged)	**-.32 (.03)*****	**.73**
Community release prior		
No[a]		
Yes	**5.12(.30)*****	**167.60**
Facility released from		
State prison[a]		
Work release/halfway house	-.48(.54)	.62
Jail	-.31(.38)	.74
Season		
Winter[a]		
Spring	**.45(.08) *****	**1.56**
Summer	**-.34(.09) *****	**.71**
Fall	**-.93 (.11)*****	**.39**
# of obs	7300	
# of imputations	10	
F statistic	**28.93*****	

Note: dummy variables for year and states are not shown
[a]Reference Category
*p<.05, **p<.01, ***p<.001

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Chapter Conclusion

The focus of this chapter was on the individual characteristics associated with inmates' escape behavior. In particular, the demographic and criminal history characteristics analyzed in this chapter were derived from previous empirical tests of the importation model and routine activities theory (particularly in terms of offender motivation). In addition, some of the variables included in this chapter's model could be relevant for understanding the applicability of self-control theory to escape behavior, although it is important to mention that the analysis did not include a valid attitudinal or behavioral measure of self-control.

The findings from this chapter both support and contradict prior escape research and prior tests of these theoretical perspectives. For instance, contrary to many older studies of prison escapes, the findings presented above indicate that white inmates were significantly less likely to have been escapees than inmates of other racial groups. Consistent with prior research, inmates convicted of a property offense were significantly more likely to have been escapees than those convicted of a property offense. Inmates with shorter sentences and those who have served smaller portions of their sentences appear to be more "motivated" to escape than other inmates. Further, there appears to be some support for the importation mode: Inmates with longer criminal histories (as indicated by prior prison time and prior jail time) and those with prior escape attempts were more likely to have been escapees. These findings also lend some support to self-control theory as these indicators can be seen as "analogous behaviors." Additional theoretical and policy-oriented discussions of these findings are presented in chapter eight.

The next chapter—chapter seven—is the final chapter with primary analyses. Unlike chapters four through six, chapter seven focuses on the violence associated with

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escapes from custody. Thus, this chapter transitions from exploring the factors associated with escapes generally to exploring the factors associated with violent escape outcomes.

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Chapter 7: Individual, Incident, and Facility Factors of Violent Escapes

This chapter analyzes the degree to which individual-, incident-, and facility-level factors can explain why some escapes lead to violent outcomes, including violence during the breakout, violence in the community, violence during recapture, and violence overall. This chapter seeks to address the final four research questions of the current study. There are three sections in this chapter. The first section provides information about the methods employed for the analyses, including a description of the data, variables, and analytic technique used in the chapter. The second section presents the results of these analyses, including separate tables and discussions of the findings for each specific outcome. The final section concludes with a few overall findings and takeaways from these analyses, but a more thorough discussion of the policy and research implications of these findings is presented in chapter eight.

Methods

Data

The focus of this chapter is to examine the scope and prevalence of violence in escapes, as well to determine if there are individual-, incident-, and facility-level factors associated with these violent outcomes. As such, this chapter uses the data from the *Correctional Incident Database, 2009* (CID; Mellow & Freilich, 2012), which includes detailed information on escapees (N=610), escape incidents (N=500), and the facilities from which these escapes occurred (N=400). Escapes from all types of correctional facilities are included in the CID, including escapes from jails, prisons, work-release facilities, etc. To accomplish this, the CID uses a central definition of escape—"a loss of correctional control over an inmate in custody"—which allows comparisons of escapes to be made across jurisdictions and improves internal validity.

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Data for the CID come from an exhaustive, open-source search protocol adapted from the Extremist Crime Database (Freilich, Chermak, Belli, Gruenewald & Parkin, 2014). CID data were collected in three-steps. The first step, called sourcing, involved identifying the escape incidents. To identify incidents that were to be included in the CID, project researchers used LexisNexis, correctional incident archives, and state department of corrections websites. Potential cases were screened using specific inclusion criteria, which helped ensure that results were uniform across jurisdictions where definitions of escape may vary. Inclusion criteria were that the escape occurred in the United States in 2009, that the escapee be under some form of correctional custody prior to the incident, and that there was an actual loss of control (i.e., that the escape was completed and not an "attempt").

The second step, called searching, involved an exhaustive search for all relevant information on each escape incident. Once an incident was identified and found to fit the inclusion criteria, the CID research team collected all available information on the facility, incident, and inmate(s) associated with that escape. Using a hierarchy of trust, this information was gathered from government publications, state department of corrections websites, newspapers, and other online resources. Inter-searcher reliability checks were made to make sure that these searches were exhaustive in nature.

Once information was gathered on each escape, the final step involved coding the available information into facility, incident, and escapee variables. Facility-level information was also gathered from the American Correctional Association's Directory of Adult and Juvenile Correctional Departments, Institutions, Agencies, and Probation and Parole Authorities (71st Edition, ACA 2010) and National Jail and Adult Detention Directory (12th Edition; ACA, 2012), as well as the Annual Survey of Jails: Jail-Level Data, 2010 (Bureau of Justice Statistics, 2010). The research team also supplemented escapee-

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level information with targeted searches on state department of corrections websites and the Victim Information Notification Everyday website, which sometimes yielded additional demographic and criminal history information. In cases of conflicting information, more credence was given to government sources than news media, and more credence to larger news organizations than smaller ones. Also, the number of sources reporting the information was taken into account. As a result, the most reliable information was used in the database. There were inter-coder reliability checks at regular intervals and every case was reviewed by one of the project managers.

Variables

Dependent variables: Based on the information gleaned from extant literature, violence appears to be a potential problem at three distinct stages of the escape incident: breakout, post breakout (in the community), and recapture. Violence can also occur overall at any one of these stages. As such, four primary dependent variables are used in this chapter to measure whether an escape resulted in violence. Each of these variables are dichotomous, measuring measured whether violence occurred at that period. The first measure, *Violence During the Breakout,* typically occurred when an inmate assaulted a member of the correctional staff to facilitate the escape. Second, *Violence in the Community,* included violent crimes committed by escapees—such as robbery, carjacking, or murder—often against individuals in the community in an attempt to help escapees remain out of custody. Third, *Violence During Recapture* accounted for whether inmates used violence as they were being apprehended, such as shooting at or striking a law enforcement officer. The final dependent variable is *Overall Violence*, which is a measure of whether violence occurred at any one of these points during the entire escape process (i.e., breakout through recapture).

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In addition to these four primary dependent variables, this chapter examines four other indicators of violence; however, these additional indicators are not used in any of the inferential analyses and are only examined to better understand the scope of violence that occurs in escapes. All four of these variables are dichotomous. *At Least One Death* indicates whether anybody died as a result of the violence during an escape. The death may have occurred at any point during the escape process, including during the breakout (e.g., a correctional officer), in the community (e.g., a community member), or during recapture (e.g., a law enforcement officer), or may even have included the escapees themselves (e.g., if an escapee was shot by law enforcement after initiating violence). Similarly, *At Least One Injury* indicates whether anybody was injured as a result of the violence. *Weapons Used* signifies whether an escapee used any type of weapon (including sharp, blunt, or projectile weapons) at any point during the escape incident, while *Hostages Taken* denotes whether a hostage was taken at any point.

Inmate-level independent variables: In this chapter, several independent variables are measured at the inmate-level, including the escapees' *Age* (measured in years), *Sex* (male or female), and *Race* (white or nonwhite). *Committing Offense*, which includes either the offense escapees were convicted of (sentenced inmates) or the offense escapees were charged with (unsentenced inmates) prior to their escape, was dichotomized into two categories: violent offense and nonviolent offense.[23] *Escape History* is a dichotomous variable indicating whether the escapee had been charged or convicted of an escape in the past. Additionally, *Sentence Length* is the number of months on the sentence for which

[23] Violent offenses include murder/attempted murder, rape/sexual assault, armed robbery/robbery, and assault/aggravated assault. Nonviolent offenses include probation or parole violations, burglary, theft/larceny/fraud, drug offenses, public order offenses, and other nonviolent offenses.

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inmates were incarcerated prior to their escape[24], while *Sentence Left* represents the number of months left on that sentence at the time of inmates' escape.[25]

Incident-level independent variables: Several independent variables are also measured at the incident-level. For example, *Assistance* is a dichotomous variable indicating whether the escapee received any type of assistance, including both inside assistance (e.g., a staff member inside the facility) and outside assistance (e.g., a friend or family member), at any point during the escape. *Evidence of Planning* is a dichotomous variable indicating whether the escape was clearly planned and not a seemingly spontaneous incident. An escape would have been coded as "planned", for example, if an escapee indicated he was going to escape prior to the incident (e.g., if he told another inmate or family member, or left a note about the escape for a correctional staff to find) or if the escape method clearly indicated that the incident was planned (e.g., tunneling through a wall in the facility). *Catalyst Event* is another dichotomous variable indicating whether some important event precipitated the incident that caused the inmate to escape. Some examples of catalyst events include inmates being transferred to other facilities, being charged or sentenced with additional crimes, or learning about the death of a family member.

In addition, the *Start Time* of the incident was categorized into the following time slots: 12:00am-5:59am, 6:00am-11:59am, 12:00pm-5:59pm, and 6:00pm-11:59pm. *Season* indicates whether the incident occurred in winter (December-February), spring (March-

[24] For unsentenced inmates, such as those in jail awaiting trial, the CID uses the length of the sentence the inmate was facing as a result of his charge. For example, if a source document indicated that an escapee was in jail awaiting trial for a burglary charge and faced up to five years (60 months) in prison if convicted, a value of "60" would be given to that escapee for his/her sentence length. Note also that inmates serving a life sentence, on death row, or who had a sentence longer than 999 months (83.25 years) were given a value of "999" for their sentence lengths. This allowed data to be included that might otherwise be missing.

[25] Both of these variables were logarithmically transformed in the analyses to improve the normality of their distributions.

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May), summer (June-August), or fall (September-November). *Weekend* indicates whether the incident occurred during a weekday (Monday-Friday) or on the weekend (Saturday or Sunday). The *Number of Escapees* denotes the number of inmates who escaped together in a single incident and *Hours Out* represents the number of hours between escapees' breakout and their recapture.[26]

The *Incident Location* indicates whether the escape occurred inside or outside the facility. For instance, both escaping during transport and failing to return from an authorized absence were categorized as "outside" the facility, while walking away from a facility, climbing over a wall, or cutting through a fence were categorized as "inside" the facility". *Secure Custody* refers to whether an inmate was in secure custody at the time of escape. For example, an escape from non-secure custody occurred when an inmate walked away from a minimum security facility with no walls or escaped during an authorized, unaccompanied leave of absence, such as during a work release. Escapes from secure custody occurred when an inmate had to overcome a barrier to facilitate the escape, such as a wall, fence, locked door, or the supervision of a correctional officer.

Facility-level independent variables: Finally, several independent variables were also measured at the facility-level. Some of these variables were measured similarly to the facility-level variables discussed in chapters four and five, including *Privately Operated*, *Rated Capacity*, *Percent Capacity, Age of the Facility*, and *Region.* Unlike the previous chapters, here *Inmate-Staff Ratio* was created by dividing the average daily population (ADP) of the facility by the number of all staff members (including both correctional and treatment staff). In addition, the variable *Gender Demographics* is a dichotomous measure

[26] While this this variable is considered to be an incident-level variable, it is actually measured at the inmate-level. For example, if one incident involved multiple escapees, each escapee may have been out of custody for different periods of time. This variable was also logarithmically transformed in the analyses to improve the normality of its distribution.

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of whether a facility was authorized to hold 1) only male offenders or 2) only female offenders, or 3) both female and male offenders.[27] *Age Demographics* indicates whether the facility primarily held adult or juvenile offenders.

Because the CID includes data from prisons and jails, the facility's *Classification* includes the following categories: minimum/work release; medium/maximum; and jail/unclassified. Likewise, *Facility Administrator* indicates the level of government at which the facility was operated, including either federal/state or local/regional.[28] *Facility Accredited* is a dichotomous variable indicating whether the facility was accredited by the American Correctional Association, which offers accreditation for jails and prisons operated by either governments or private organizations. The final facility-level variable is the *Number of Escapes*, which represents the number of escape incidents that occurred in a particular facility in the study year (2009).

Analytic Technique

Like chapter six, the dependent variables in this chapter are dichotomous categorical outcomes. Thus, this chapter also uses logistic regression and reports both the log odds and odds ratio. However, unlike the data in chapter six, the CID was originally developed using a relational database that linked escapees to escape incidents, and incidents to facilities. The CID contains data on 610 escapees involved in 500 escape

[27] Note that this operationalization only applies to the descriptive statistics. Because female escapees were not included in the analyses, this variable is later operationalized as a measure of whether a facility held only male offenders or was a co-gender facility.

[28] Though they measure similar constructs, there are important differences between *Classification* and *Facility Administrator*. While facilities operated at the local levels are usually considered to be "jails", in some instances a local jurisdiction will have multiple facilities, some of which receive a security classification. Thus, some of the facilities operated at the local level may receive a security classification and would have been coded accordingly. In addition, although less frequent, some prison facilities were also not given an official security classification and were thus "unclassified." Finally, there were also cases in which jails were actually operated by the state, including states with fully integrated correctional systems (i.e., Alaska, Connecticut, Delaware, Hawaii, Rhode Island, and Vermont), as well as those in which some of the jails are operated by a state agency (e.g., Texas).

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incidents from 400 facilities. To account for the nested structure of these levels of data, the higher levels of data (i.e., the facility and the incident) are disaggregated across the lowest level (i.e., inmate). Thus, while information on escapees, incidents, and facilities is included in the logistic regressions presented in this chapter, the unit of analysis is the escapee (N=610).

Disaggregating the higher levels into the lowest level of data potentially has negative ramifications for the analyses. Importantly, nested data may violate the assumption of multivariate regression-based techniques that the observations within a dataset are independent of one another. Therefore, these analyses use robust standard errors, which account for the violation of the assumption of independence. Although other methods, such as hierarchical linear modeling, have been said to be effective ways of analyzing multi-level predictors of institutional misconduct (Lahm, 2008, 2009; Steiner & Wooldredge, 2008; Wooldredge et al., 2001), there were too few units nested within one another in the CID to justify using these techniques. For example, most facilities only experienced one or two escape incidents and most escape incidents involved only one or two escapees.

It is also important to note that the analyses in this chapter were only conducted on the male escapees (N=588) from the CID because none of the female escapees committed any acts of violence (at the breakout, in the community, or during recapture), which meant that there was no variation in the females' outcomes to model. In addition, some variables were removed from certain analyses because their inclusion would not have made sense. For example, the aforementioned *Hours Out* variable was not included in the analyses of violence during the breakout because it was not reasonable to expect that the time inmates were out of custody would impact whether they committed violence as they left custody. Similarly, only inmates who were eventually known to have been recaptured (N=539) were

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included in the analyses of violence in the community, violence at breakout, and overall violence.

Results

The descriptive statistics for the entire sample of escapees in the CID (n=610) is presented in Table 8 (page 113). Though these descriptive statistics are at the individual level, they are based on a sample of 610 inmates involved in 500 escape incidents from 400 facilities in 2009. Escapees in the CID tend to be young, with an average age of about 30 years. Escapees were also overwhelmingly male, with fewer than four percent of escapees being female. Nearly 57 percent of all escapees in the CID were white, and more than two-thirds of escapees were in custody for a non-violent crime (e.g., a parole/probation violation, theft, burglary, or a drug offense). Given the finding in chapter six that escapees often have a history of escape, it is not surprising that about eleven percent of escapees in the CID had a prior history of escaping from a prison or jail.

On average, inmates were serving—or, in the case of jail inmates, awaiting trial on charges that could have resulted in—long sentences of roughly 18 years (218 months). Inmates also had more than 14 years on average left on their sentence. Note that some inmates had sentences of zero months or had zero months left to serve. These cases, though rare, typically involved inmates who were in jail awaiting trial when they escaped, and then were later acquitted of, or given probation for, their original charge after they were recaptured. However, there were also cases in which inmates simply decided to escape despite having very short sentences and/or having very little time left to serve from their sentences. One example in the CID involved an individual who was several days into a 30-day jail sentence before walking away from a custodial work crew.

For the variables relevant to the escape incident, Table 8 (page 113) indicates that less than one-fifth of the escapees were involved in incidents that involved any type of

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assistance. Assistance most often came from an individual outside the prison, such as a family member or friend of one of the escapees. Usually, this assistance came in the form of providing the escapee with a hiding place while he/she was out of custody, though in some cases it involved someone sneaking tools into the facility that were used in the escape. There were also a few incidents in the CID where assistance came from a staff member of the facility. This assistance took the form of staff members driving the escapees away from the facility or even helping them assault other staff to facilitate the breakout. More than 80 percent of the incidents, however, did not involve any type of assistance.

Approximately one-fourth of all escapees were involved in incidents in which there was clear evidence of planning. A number of escapees also left custody as a result of some type of catalyst event. Previous research indicates that catalyst events often involve an administrative sanction or otherwise increased justice involvement, such as a parole denial, a transfer to a higher security facility, or a charge for a new offense (Kentucky Bureau of Corrections, 1979; Murphy, 1984; Sandhu, 1996; Virginia Department of Corrections, 1980; Wharry, 1972). Consistent with these findings, most catalyst events recorded in the CID included threats of deportation or pending new indictments/internal punishments. Likewise, many of the inmates who escaped from jail left upon being convicted or upon finding out the length of their sentences. Other catalyst events included the recent birth of one inmate's daughter and being threatened by gang members.

Many escapees left custody during evening hours, as almost 30 percent of all escapes occurred between the hours of 6:00pm and 11:59pm, while only 18 percent occurred between 12:00am and 5:59am. More escapees also left custody during the summer months than any other season. Escapes appear to occur (proportionately) equally during all days of the week with 71 percent of inmates escaping between Monday and Friday and 29 percent fleeing on weekend days.

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More than 42 percent of the inmates escaped from outside the facility, such as during a transfer, furlough, work release, or an offsite medical visit. Further, around 41 percent of inmates escaped while in non-secure custody. In the CID, escapes from non-secure custody occurred both inside (e.g., walkaways from a facility with no secure barrier) and outside (e.g., failing to return from an authorized release) the facility. Likewise, escapes from secure custody could have also occurred inside (e.g., an escape from a medium or maximum security facility) or outside (e.g., an escape during secure transport or during an escorted offsite medical visit) the facility.

The CID indicates that almost 92 percent of all inmates were captured after they escaped, and that escapees who were recaptured spent an average 11 and a half days (275 hours) out of custody. In one of the only other studies on recapture, Culp (2005, 282) estimated the recapture rate to be much lower at around 75 percent. The difference between Culp's estimates and the descriptive statistics present here could be a result of the different data being used, the inclusion of jails in the current study, the decade difference between the two studies' data collection periods, or some other reason. In the CID, the vast majority of escape incidents involved one or two inmates, though the average was 1.63 escapees per incident with a range of one to eight.

The facility-level independent variables are also described in Table 8. The average facility from which inmates escaped was around 31 years old at the time of the data collection, although some were built very recently and one was built in 1814. Inmates escaped from facilities of various sizes, with rated capacities ranging from 6 to 5,134 and an average of 606. Facilities, though, were generally under-capacity, with an average capacity of approximately 97 percent. More than 56 percent of the jails and prisons from which inmates escaped housed both males and females (co-gender facilities), followed by 42

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percent that only housed males and 2 percent that only housed females. The majority of the facilities housed adult offenders, and fewer than six percent primarily housed juveniles.

There was also much variation in terms of staff to inmate ratio. On average, there were almost five inmates per staff member at these prisons and jails, but some facilities had more than 16 inmates per staff member while others had more staff than inmates. Notably, jails accounted for a large portion of the escapes recorded in the CID: Approximately 56 percent of the facilities from which an inmate escaped were operated by, or on behalf of (in the case of privately run facilities), local jurisdictions (i.e., regional, county, or municipal facilities). Similarly, more than half of the facilities in the CID were not given a security classification, while around 31 percent were classified as minimum/low security facilities or work release centers, and nearly 18 percent were classified as medium or maximum security facilities.

Table 8 also indicates that about nine percent of the inmates in the CID escaped from facilities that were privately operated. Most of the facilities included here (82 percent) were not accredited by the American Correctional Association. Consistent with the descriptive statistics of facilities in chapters four and five, most of the facilities in this dataset were located in the South, while the northeast was the most underrepresented region in the CID. Finally, the average facility in the CID saw 2.34 inmates escape during 2009.

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Table 8. *Descriptive Statistics of Inmate, Incident, and Facility-level Variables (n=610)*

	Mean/Percent	Stand. Dev.	Min-Max	% Missing
Inmate variables				
Age	29.99	9.85	14-66	5.74
Sex				.98
Male	96.36%	-	-	
Female[a]	3.64%	-	-	
Race				15.57
White	56.50%	-	-	
Nonwhite	43.50%	-	-	
Committing offense				9.51
Non-violent	67.39%	-	-	
Violent	32.61%	-	-	
Escape history				23.93
No	89.01%			
Yes	10.99%			
Sentence length in months	218.08	297.48	0-999	45.41
Sentence left in months	171.81	303.24	0-999	51.80
Incident variables				
Assistance received				6.23
No	80.59%	-	-	
Yes	19.41%	-	-	
Evidence of planning				0
No	75.57%	-	-	
Yes	24.43%	-	-	
Catalyst event				0
No	93.93%	-	-	
Yes	6.07%	-	-	
Start time				13.93
12:00am-5:59am	18.29%	-	-	
6:00am-11:59am	24.76%	-	-	
12:00pm-5:59pm	27.24%	-	-	
6:00pm-11:59pm	29.71%	-	-	
Day of week				.98
Weekday	71.36%	-	-	
Weekend	28.64%	-	-	
Incident location				10.82
Inside	57.35%	-	-	
Outside	42.65%	-	-	
Secure custody				6.39
Non-secure	40.63%	-	-	
Secure	59.37%	-	-	
Season				0
Winter	22.46%	-	-	
Spring	21.64%	-	-	
Summer	29.84%	-	-	
Fall	26.07%	-	-	
Recaptured				0

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No	8.52%			
Yes	91.48%			
Number of escapees	1.63	1.35	1-8	0
Hours out [b]	275.26	1108.51	.05-16776	23.44
Facility variables				
Age of the facility (years)	31.15	28.93	0-195	11.15
Rated capacity	605.95	791.76	6-5134	8.20
Percent capacity	96.52	29.97	11.5-252.2	26.89
Gender demographics				7.38
Female[a]	1.95%	-	-	
Co-gender	56.46%			
Male	41.59%	-	-	
Age demographics				15.41
Adults	94.19%	-	-	
Juveniles	5.81%	-	-	
Inmate-total staff ratio	4.46	2.62	.27-16.42	53.08
Classification				5.57
Min./work release	31.08%	-	-	
Medium/maximum	17.53%	-	-	
Jail/unclassified	51.39%	-	-	
Facility administrator				0
Federal/state	43.61%	-	-	
Local/regional	56.39%	-	-	
Privately operated				2.62
No	90.91%	-	-	
Yes	9.09%	-	-	
Facility accredited				5.25
No	81.83%	-	-	
Yes	18.17%	-	-	
Region				0
Northeast	13.93%	-	-	
Midwest	19.02%	-	-	
South	48.03%	-	-	
West	19.02%	-	-	
Number of escapes	2.34	1.91	1-9	0

[a] Not included in the analytic models
[b] of inmates who were recaptured

Scope of Violence

Before the results of the analytic models are presented, it is important to first examine how often escapes actually result in violent outcomes. As indicated in the previous chapters, there is perception among policymakers, members of the public, and the media

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that all escapes have the potential to result in violence. Table 9 presents the descriptive statistics of the four outcome variables that will be included in the analytic models—i.e., violence at the breakout, violence in the community, violence during recapture, and overall violence—as well as four additional indicators related to violence: whether the violent escape resulted in a death, whether it resulted in an injury, whether the escapees used a weapon, and whether any hostages were taken during the incident.

This table indicates that violence is most likely to occur at the breakout stage of the escape incident. Nearly eleven percent of the inmates in the NCRP were involved in escapes that were violent at this stage, while fewer than nine percent of the escapees committed a violent crime in the community. Violence also occurred relatively infrequently during recapture, as fewer than six percent of escapees used any violence to help them avoid recapture. Overall, violence occurred in nearly one-fifth of all escapes. However, it is important to note that the CID does not distinguish between different types of violence and violence includes everything from pushing and shoving to stabbing and shooting. Thus, the other four indicators of violence provide a more nuanced picture of the scope of violent outcomes in these escape incidents. A little more than one percent of all violent escapes resulted in a death. The incidents that did result in a death included cases during which the escapees killed guards to facilitate their escape, killed citizens in the community after their escape, or even were killed themselves after instigating violent altercations with correctional staff or law enforcement. Likewise, less than ten percent of the incidents resulted in any injury, including minor or serious injuries to guards, citizens, police officers, or the escapees.

Only about four percent of escapees used a weapon at some point during the escape incident. The weapons used by escapees ranged from knives and guns to other blunt or sharp objects. Weapon use included, for example, escapees using weapons to facilitate their

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breaking out of custody (e.g., creating a makeshift weapon from another sharp object or stealing a weapon from a guard), as well as their using weapons acquired after their escape against members of the community or police officers. The great majority of escape incidents also did not result in hostages being taken. As was the case with the other indicators of violence, hostages may have been taken at any point during the escape process. As such, hostages included correctional staff taken during the breakout, as well as members of the public who were taken after the breakout.

Table 9. *Scope of Violence*

	Percent	% Missing
Outcome variables		
Violence - breakout		6.39
No	89.14	
Yes	10.86	
Violence - community		9.84
No	91.64	
Yes	8.36	
Violence - recapture		22.79
No	94.27	
Yes	5.73	
Violence - overall		2.46
No	80.84	
Yes	19.16	
Other Indicators of Violence		
At least one death		.82
No	98.68	
Yes	1.32	
At least one injury		.98
No	90.89	
Yes	9.11	
Weapon used		2.46
No	95.63	
Yes	4.37	
Hostage taken		2.13
No	97.99	
Yes	2.01	

The remainder of this chapter presents the analytic models examining the factors associated with violent outcomes during the breakout (Table 10), post breakout (i.e., in the

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community; Table 11), during recapture (Table 12), or overall (Table 13). For each of these outcomes, four separate models were estimated: 1) a model with only inmate variables; 2) a model with only incident variables; 3) a model with only facility variables; and 4) a full model with all three levels of variables together. Estimating these four models allows for a more complete understanding of how inmate-, incident-, and facility-level variables impact violence.

None of the female escapees in the CID committed violence at any stage in the escape process. Therefore, the following analytic models only include the male escapees (n=588). In addition, escapees who had not been recaptured at the time of data collection would not have information about the circumstances surrounding their time spent in the community or their recapture. Because of this, the final three sets of analytic models—i.e., those analyzing violence in the community, at recapture, and overall—only include the male escapees in the CID who were known to have been recaptured at the time of data collection (n=539). These three sets of models also included the incident-level variable *Hours Out*, because this was only available for recaptured inmates.

Violence during the Breakout

Table 10 presents the results of the logistic regression models analyzing the impact of individual-, incident-, and facility-level factors on violence during the breakout stage of the escape process. **Model One**, which includes only inmate variables, is significant overall ($F=3.65$, $p<.01$). This model also indicates that escapees were less likely to use violence to facilitate their breakout as they became older ($p<.05$). Each year that an escapee ages is associated with a five percent decrease in the odds of using violence at this stage in the escape process. In addition, the odds of escapees using violence who have had a previous escape conviction were 2.7 times larger than for first-time escapees. Escapees who were in prison or jail as a result of a violent crime (e.g., murder, assault, robbery, etc.) were more

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likely to use violence at breakout than inmates in custody for a property or otherwise nonviolent crime (e.g., theft, drug offense, parole violation, etc.), although this finding only approached statistical significance ($p<.10$).

Model Two examines the impact of the incident variables on the outcome. This model was also significant overall ($F=4.09$, $p<.001$) with many significant independent variables. Note that the variable *Secure Incident* is excluded from both Model Two and Model Four. This is because, by definition, escapees who left custody from non-secure custody (e.g., from a facility with no barriers or during an un-escorted furlough) had neither opportunity, nor reason, to use violence to facilitate their breakout. Thus, none of the escapes from non-secure custody involved any violence at the breakout and it would have been impossible to model any variation in this variable.

Notably, escapees who received assistance were less likely to use violence at the breakout ($p<.05$). In fact, the odds of an escapee who received assistance using violence were nearly 70 percent lower than escapees who were not assisted. Conversely, incidents in which multiple inmates escaped together were more likely to be violent at the breakout than incidents involving only one escapee ($p<.01$) such that the odds of violence at breakout were 1.38 times larger with each increase in the number of escapees involved in an incident. Escapees who engaged in escape incidents that were planned ($p<.001$) or were precipitated by a catalyst event ($p<.05$) were also more likely to use violence at the breakout. Escapees were also more likely to use violence at certain times of the day. In particular, escapees who broke out of custody in either the morning (6:00am-11:59am) or evening (6:00pm-11:59pm) hours were significantly more likely to have used violence than those who escaped during the middle of the day (12:00pm-5:59pm) or very early in the morning (12:00am-5:59am).

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The effect of facility characteristics on violence during the breakout was examined in **Model Three**. This model was significant overall ($F=1.97$, $p<.05$); however, only the facility's classification was associated with violence at this stage. Inmates who escaped from a medium or maximum security facility ($p<.05$) and inmates who escaped from a jail or unclassified facility ($p<.01$) were significantly more likely to use violence during their breakout than inmates who escaped from a minimum/low security facility or work release center. In fact, the impact of classification was so strong that the odds of an escapee being involved in a violent breakout were 45 times greater in jails and 14 times greater in medium or maximum security facilities.

The full model, **Model Four**, included all of the inmate-, incident-, and facility-level variables. This model was significant overall ($F=1.90$, $p<.01$), but many of the variables that were significant in the other three models were no longer significant here. Notably, the relationships between inmate characteristics and violence observed in Model One appear to have been mediated by the inclusion of the incident and facility variables in Model Four. Conversely, one facility variable (classification) and several incident variables (evidence of planning and incident start time) remained significant, strong predictors of violence in the full model. In addition, the location of the incident, which was only marginally significant in Model Two, was a strong predictor of violence in the full model. The odds of an inmate who escaped from outside the facility (e.g., during an offsite medical visit or during transport to another facility) using violence during their breakout were nearly four times larger than those whose escape originated inside a facility. Thus, incident variables appear to be the best indicators of whether violence occurred during the breakout stage of the escape process.

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Table 10. *Inmate, Incident, and Facility Factors Associated with Violence During the Breakout*

	Model One		*Model Two*		*Model Three*		*Model Four*	
	Coef.(SE)	OR	Coef.(SE)	OR	Coef.(SE)	OR	Coef.(SE)	OR
Inmate variables								
Age	**-.05(.02)***	**.95**					-.04(.03)	.96
Race								
White[a]								
Nonwhite	.13(.35)	114					.26(.43)	1.30
Committing offense								
Non-violent[a]								
Violent	**.66(.37)†**	**1.93**					.42(.49)	1.52
Escape history								
No[a]								
Yes	**.99(.46)***	**2.68**					.75(.60)	2.11
Sen. length (logged)	.28(.29)	1.33					.33(.35)	1.39
Sentence left (logged)	-.04(.21)	.96					-.07(.26)	.93
Incident variables								
Assistance received								
No[a]								
Yes			**-1.07(.51)***	**.34**			**-1.26(.65)†**	**.28**
Evidence of planning								
No[a]								
Yes			**1.64(.36)*****	**5.16**			**1.52(.48)****	**4.59**
Catalyst event								
No[a]								
Yes			**1.15(.49)***	**3.16**			.62(.64)	1.86
Start time								
12:00am-5:59am[a]								
6:00am-11:59am			**2.21(.82)****	**9.09**			**1.86(.78)***	**6.42**
12:00pm-5:59pm			.73(.87)	2.07			.30(.88)	1.35
6:00pm-11:59pm			**2.12(.80)****	**8.36**			**1.86(.82)***	**6.43**
Day of week								
Weekday[a]								
Weekend			.25(.32)	1.29			.13(.49)	1.14
Incident location								

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Inside[a]							
Outside		**.69(.36)†**	**1.99**			**1.29(.45)****	**3.61**
Secure custody[b]							
Non-secure		-	-			-	-
Secure		-	-			-	-
Season							
Winter[a]							
Spring		.44(.50)	1.56			.41(.65)	1.50
Summer		.44(.49)	1.55			.45(.62)	1.57
Fall		.25(.52)	1.28			.13(.60)	1.14
Number of escapees		**.32(.11)****	**1.38**			.26(.29)	1.30
Hours out (logged)[c]		-	-			-	-
Facility variables							
Age of the facility				-.01(.01)	.99	-.01(.01)	.99
Rated cap. (logged)				-.20(.15)	.82	-.30(.18)	.74
Percent capacity				-.79(.84)	.45	-.80(1.18)	.45
Gender demographics							
Co-gender [a]							
Male				-.39(.61)	.68	-.12(.79)	.89
Age demographics							
Adults[a]							
Juveniles				1.11(.67)	3.03	.39(.96)	1.47
Inmate-total staff rat.				.00(.11)	1.00	-.09(.13)	.91
Classification							
Min./work release[a]							
Medium/maximum				**2.64(1.03)***	**14.03**	**1.92(.98)†**	**6.85**
Jail/unclassified				**3.81(1.33)****	**45.33**	**2.90(1.05)****	**18.16**
Facility administrator							
Federal/state[a]							
Local/regional				-1.29(.90)	.28	-.66(.98)	.52
Privately operated							
No[a]							
Yes				.50(.74)	1.64	.98(.90)	2.65
Facility accredited							

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No[a]						
Yes			.59(.62)	1.80	.39(.86)	1.48
Region						
Northeast[a]						
Midwest			-.04(.53)	.96	.07(.62)	1.07
South			-.61(.55)	.54	-.63(.67)	.53
West			-.32(.70)	.73	-.39(.80)	.67
Number of escapes			.10(.11)	1.11	-.06(.20)	.94
# of obs	588	588	588		588	
# of imputations	10	10	10		10	
F statistic	**3.65****	**4.09*****	**1.97***		**1.90****	

Note: above analyses only include males
[a] reference Category
[b] removed due to perfect prediction
[c] not included in the breakout analysis
†p<.10,*p<.05, **p<.01, ***p<.001

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Violence in the Community

Table 11 presents the results of the logistic regression models analyzing the impact of individual-, incident-, and facility-level factors on violence in the community during the post breakout period of the escape process. None of the inmate-level variables included in **Model One** were significant. Both the escapees' age and their history of escape behavior were positively associated with their likelihood of committing violence in the community, but these only approached statistical significance ($p<.10$). The overall model itself also only approached statistical significance ($F=2.00$, $p<.10$), indicating that inmate characteristics do not significantly improve the understanding of when escapees will engage in violence after they break out of custody.

Model Two performed better than the first model, as indicated by the significance of the overall model ($F=1.79$, $p<.05$). Compared to the results presented in Table 10, the incident-level factors associated with violence during the breakout are different than those associated with violence in the community. Inmates who escaped from secure custody, for example, were more likely to engage in violence in the community than those who escaped from non-secure custody ($p<.05$). The season in which inmates escaped also influenced their likelihood in using violence at this stage. Those who escaped in summer and fall were less likely than those who escaped in winter to commit an act of violence in the community.

The model including only facility variables, **Model Three**, was not significant overall ($F=1.21$, $p>.10$). Most of variables included in this model were also not significant. The only significant variable in Model three was the age of the facility ($p<.05$), indicating that inmates who escaped from older facilities were less likely to have committed violence in the community. However, the implications of this finding are not clear and one should be cautious of this interpretation.

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Model Four, which includes all of the inmate-, incident-, and facility-level variables, was also not significant overall ($F=1.16$, $p>.10$). Not surprisingly, aside from age of the facility, none of the inmate or facility variables were significantly associated with violence in the community. Further, season was the only incident variable that remained significant in the full model. Given its poor fit and limited number of significant independent variables, the full model does not successfully improve the understanding of when violence will occur in the community after an inmate breaks out of custody.

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Table 11. *Inmate, Incident, and Facility Factors Associated with Violence in the Community*

	Model One		*Model Two*		*Model Three*		*Model Four*	
	Coef.(SE)	OR	Coef.(SE)	OR	Coef.(SE)	OR	Coef.(SE)	OR
Inmate variables								
Age	**.03(.02)†**	**1.03**					**.04(.02)†**	**1.04**
Race								
White[a]								
Nonwhite	-.15(.35)	.86					-.06(.42)	.94
Committing offense								
Non-violent[a]								
Violent	.66(.40)	1.94					.78(.47)	2.19
Escape history								
No[a]								
Yes	**.81(.42)†**	**2.25**					.98(.62)	2.67
Sen. length (logged)	.19(.27)	1.20					-.02(.39)	.98
Sentence left (logged)	-.19(.20)	.83					-.11(.29)	.89
Incident variables								
Assistance received								
No[a]								
Yes			.05(.46)	1.05			.01(.49)	1.01
Evidence of planning								
No[a]								
Yes			**.69(.41)†**	**1.99**			.24(.53)	1.27
Catalyst event								
No[a]								
Yes			.50(.56)	1.66			.01(.67)	1.01
Start time								
12:00am-5:59am[a]								
6:00am-11:59am			.53(.54)	1.69			.43(.71)	1.54
12:00pm-5:59pm			.33(.60)	1.39			.41(.72)	1.50
6:00pm-11:59pm			-.07(.57)	.93			-.11(.67)	.89
Day of week								
Weekday[a]								
Weekend			.09(.37)	1.09			.42(.41)	1.53
Incident location								

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Inside[a]							
Outside		.36(.43)	1.43			.38(.53)	1.46
Secure custody							
Non-secure[a]							
Secure		**.85(.43)***	**2.34**			**1.00(.55)†**	**2.71**
Season							
Winter[a]							
Spring		-.32(.40)	.73			-.08(.74)	.93
Summer		**-1.95(.56)* ***	**.14**			**-1.9(.67)****	**.15**
Fall		**-1.44(.49)****	**.24**			**-1.36(.59)***	**.26**
Number of escapees		-.03(.15)	.97			.06(.23)	1.06
Hours out (logged)		.10(.07)	1.11			.08(.09)	1.08
Facility variables							
Age of the facility				**-.02(.01)***	**.98**	**-.02(.01)***	**.98**
Rated cap. (logged)				.09(.16)	1.12	.03(.21)	1.03
Percent capacity				.43(.70)	1.10	.58(.74)	1.78
Gender demographics							
Co-gender [a]							
Male				.31(.91)	1.46	.48(.86)	1.62
Age demographics[b]							
Adults[a]				-	-	-	-
Juveniles				-	-	-	-
Inmate-total staff rat.				.09(.07)	1.08	.13(.10)	1.14
Classification							
Min./work release[a]							
Medium/maximum				**1.02(.58)†**	**2.38**	.42(.75)	1.53
Jail/unclassified				1.68(1.49)	6.07	1.45(1.70)	4.25
Facility administrator							
Federal/state[a]							
Local/regional				-.97(1.12)	.31	-1.05(1.40)	.35
Privately operated							
No[a]							
Yes				.75(.58)	1.94	.93(.65)	2.54
Facility accredited							

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No[a]						
Yes			.30(.50)	1.31	.07(.61)	1.07
Region						
Northeast[a]						
Midwest			.13(.63)	1.05	.07(.61)	1.36
South			-.31(.58)	.70	.31(.67)	.82
West			-.86(.84)	.42	-.91(.96)	.40
Number of escapes			-.02(.11)	.98	.08(.17)	1.08
# of obs	539	539	539		539	
# of imputations	10	10	10		10	
F statistic	**2.00†**	**1.79***	1.21		1.16	

Note: above analyses only include males who were recaptured
[a] reference Category
[b] removed due to perfect prediction
†p<.10,*p<.05, **p<.01, ***p<.001

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Violence During recapture

The results of the logistic regression models analyzing the impact of individual-, incident-, and facility-level factors on violence during recapture are presented in Table 12. As with the previous tables, **Model One** includes only inmate variables, **Model Two** includes only incident variables, **Model Three** includes on facility variables, and **Model Four** is the full model with all of the variables. None of these four models were significant overall. Further, there were no individual variables in any of these models that were significantly associated with the outcome (i.e., violence during recapture) and only two variables, the age and region of the facility, even approached statistical significance ($p<.10$). Thus, none of these models, or the variables in the models, appear to be beneficial for understanding when escapees will use violence to avoid or delay their recapture.

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Table 12. *Inmate, Incident, and Facility Factors Associated with Violence During Recapture*

	Model One		*Model Two*		*Model Three*		*Model Four*	
	Coef.(SE)	OR	Coef.(SE)	OR	Coef.(SE)	OR	Coef.(SE)	OR
Inmate variables								
Age	.02(.02)	1.02					.03(.03)	1.03
Race								
White[a]								
Nonwhite	-.03(.53)	.97					-.61(.62)	.77
Committing offense								
Non-violent[a]								
Violent	.21(.49)	1.23					.22(.58)	1.25
Escape history								
No[a]								
Yes	.15(.64)	1.16					.05(.66)	1.06
Sen. length (logged)	.04(.30)	1.04					-.07(.43)	.93
Sentence left (logged)	.11(.23)	1.12					.30(.29)	1.35
Incident variables								
Assistance received								
No[a]								
Yes			.28(.40)	1.32			.31(.51)	1.36
Evidence of planning								
No[a]								
Yes			.36(.45)	1.43			.19(.61)	1.21
Catalyst event								
No[a]								
Yes			.42(.67)	1.63			-.03(.66)	.97
Start time								
12:00am-5:59am[a]								
6:00am-11:59am			.44(.73)	1.52			.35(.83)	1.42
12:00pm-5:59pm			.44(.73)	1.56			.42(.88)	1.52
6:00pm-11:59pm			-.12(.81)	.89			-.01(.93)	.99
Day of week								
Weekday[a]								
Weekend			.12(.49)	1.13			.38(.57)	1.47
Incident location								

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Inside[a]							
Outside		.25(.50)	1.29			.27(.53)	1.31
Secure custody							
Non-secure[a]							
Secure		.64(.52)	1.89			.69(.58)	1.98
Season							
Winter[a]							
Spring		-.19(.58)	.83			-.31(.65)	.74
Summer		-.32(.54)	.72			-.39(.62)	.68
Fall		-.66(.62)	.51			-.79(.74)	.45
Number of escapees		-.31(.35)	.77			-.38(.38)	.68
Hours out (logged)		.03(.10)	1.03			-.03(.12)	.97
Facility variables							
Age of the facility				**-.03(.01)†**	**.97**	**-.03(.02)†**	**.97**
Rated cap. (logged)				.04(.20)	1.04	.03(.23)	.97
Percent capacity				1.15(.71)	3.15	1.31(.80)	3.70
Gender demographics							
Co-gender [a]							
Male				.02(.78)	1.02	-.00(.88)	..99
Age demographics							
Adults[a]							
Juveniles				-.50(1.21)	.61	.33(1.45)	.72
Inmate-total staff rat.				.03(.12)	1.04	.02(.13)	1.02
Classification							
Min./work release[a]							
Medium/maximum				.53(.84)	1.69	.16(.98)	1.17
Jail/unclassified				1.26(1.19)	3.53	.71(1.34)	2.03
Facility administrator							
Federal/state[a]							
Local/regional				-.68(.94)	.50	-.53(1.07)	.59
Privately operated							
No[a]							
Yes				1.07(.61)	2.11	.87(.69)	2.40
Facility accredited							

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No[a]						
Yes			.16(.68)	1.01	-.14(.79)	.87
Region						
Northeast[a]						
Midwest			-.97(.69)	.49	-.75(.68)	.47
South			**-1.36(.64)†**	**.34**	**-1.18(.66)†**	**.31**
West			-1.72(1.08)	.20	-1.68(1.22)	.19
Number of escapes			-.14(.18)	.94	.09(.20)	1.09
# of obs	539	539	539		539	
# of imputations	10	10	10		10	
F statistic	.51	.44	.93		.99	

Note: above analyses only include males who were recaptured
[a] reference Category
†p<.10,*p<.05, **p<.01, ***p<.001

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Overall Violence

The final series of models are presented in Table 13. These models analyze the associations between the individual-, incident-, and facility-level factors on violence at any point during the entire escape process (i.e., "overall" violence). **Model One** fits the data well and is significant overall (F=4.30, p<.001). The results here again indicate that escapees who had a history of escaping from custody were significantly more likely than those without an escape history to use violence to facilitate some part of their escape (p<.05). Another notable finding is that inmates' committing offense became a significant indicator of whether an escape will lead to a violent outcome when violence was examined across the entire spectrum of the escape rather than at one of the specific stages (i.e., the breakout, post-breakout, or recapture stage). Finally, the odds that an inmate in custody for a violent offense would have used violence during the escape were 1.82 times larger than for an inmate in custody for a nonviolent offense (p<.05).

Model Two was also significant overall (F=3.03, p<.001), indicating a good fit with the data. Consistent with the results presented in Table 10, inmates who planned their escape (p<.001) or who escaped as a result of some catalyst event (p<.01) were more likely to use violence at some point during the escape process. Again too, escapees were more likely to use violence if the incident occurred in either the morning (6:00am-11:59am) or evening (6:00pm-11:59pm) hours, compared to those that occurred at other times of the day. Holding all other incident-level factors constant, escapees were more likely to commit violence at some point during the escape process if the incident originated from outside of the facility (p<.05) or from secure custody (p<.001). In fact, the odds of escapees engaging in violence were almost four times larger for escapes from secure custody than escapes from nonsecure custody.

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The results from **Model Three**, which was also significant overall ($F=1.80$, $p<.05$), show that inmates who escaped from higher security (i.e., medium or maximum) facilities or jails and other unclassified facilities were more likely to use violence than those who escaped from facilities with lower security classifications ($p<.01$). This relationship between facility classification and overall violence was very strong. The odds that inmates who escaped from jail would use violence were nearly 20 times greater than those who escaped from minimum security or work release facilities. The age of the facility was also significantly, negatively related to overall violence ($p<.001$). Further, there was some indication that escapees from locally and regionally operated facilities were less likely to use violence, while those from privately operated facilities were more likely to use violence, but both of these results only approached statistical significance ($p<.10$).

Many of the incident and facility variables that were significant in Models Two and Three remained significant in **Model Four** ($F=1.66$, $p<.01$), but none of the inmate variables were significantly associated with overall violence in the full model. Some of the strongest indicators of violence were whether the escapee left from secure custody (compared to nonsecure custody, odds ratio=2.96) or from a jail or an unclassified facility (compared to a minimum security or work release facility, odds ratio=9.07). Based on the results from all four models, it is evident that incident variables are the best indicators of when escapees were likely to have used violence at some point during the escape.

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Table 13. *Inmate, Incident, and Facility Factors Associated with Overall Violence*

	Model One		*Model Two*		*Model Three*		*Model Four*	
	Coef.(SE)	OR	Coef.(SE)	OR	Coef.(SE)	OR	Coef.(SE)	OR
Inmate variables								
Age	**-.02(.01)†**	**.98**					-.02(.02)	.98
Race								
White[a]								
Nonwhite	.07(.25)	1.07					.06(.30)	1.071
Committing offense								
Non-violent[a]								
Violent	**.60(.29)***	**1.82**					.34(.34)	1.41
Escape history								
No[a]								
Yes	**.73(.33)***	**2.08**					.40(.38)	1.49
Sen. length (logged)	.25(.19)	1.29					-.02(.19)	.20(.17)
Sentence left (logged)	-.01(.14)	.99					.04(.17)	1.04
Incident variables								
Assistance received								
No[a]								
Yes			-.11(.33)	.89			-.27(.38)	.76
Evidence of planning								
No[a]								
Yes			**1.00(.28)*****	**2.71**			**.88(.37)***	**2.41**
Catalyst event								
No[a]								
Yes			**1.08(.41)****	**2.93**			.73(.50)	2.08
Start time								
12:00am-5:59am[a]								
6:00am-11:59am			**1.06(.45)***	**2.88**			**1.12(.53)***	**3.03**
12:00pm-5:59pm			**.78(.53)†**	**2.17**			.75(.64)	2.12
6:00pm-11:59pm			**1.16(.46)****	**3.19**			**1.07(.40)***	**2.91**
Day of week								
Weekday[a]								
Weekend			.12(.25)	1.13			.35(.31)	1.41

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Incident location							
Inside[a]							
Outside		.59(.32)*	1.80			.70(.40)†	2.02
Secure custody							
Non-secure[a]							
Secure		1.32(.34)***	3.73			1.08(.40)**	2.96
Season							
Winter[a]							
Spring		-.11(.35)	.90			-.19(.41)	.83
Summer		-.56(.34)†	.57			-.66(.41)	.52
Fall		-.45(.36)	.64			-.48(.42)	.62
Number of escapees		-.14(.09)	1.14			.17 (177)	1.11
Hours out (logged)		-.02(.06)	.96			-.02(.07)	.96
Facility variables							
Age of the facility				-.01(.00)**	.99	-.02(.01)**	.98
Rated cap. (logged)				-.10(.13)	.90	-.12(.16)	.89
Percent capacity				.19(.47)	1.21	.45(.50)	1.57
Gender demographics							
Co-gender [a]							
Male				.01(.48)	1.01	.26(.56)	1.30
Age demographics							
Adults[a]							
Juveniles				.59(.60)	1.81	-.22(.76)	.80
Inmate-total staff rat.				.00(.06)	.99	-.06(.08)	.94
Classification							
Min./work release[a]							
Medium/maximum				1.58(.49)**	4.87	.70(.60)	2.01
Jail/unclassified				2.93(1.03)**	18.79	2.21(1.04)*	9.07

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Facility administrator						
Federal/state[a]						
Local/regional			**-1.45(.77)†**	**.23**	-1.33(.85)	.26
Privately operated						
No[a]						
Yes			**.76(.44)†**	**2.13**	**1.05(.55)†**	**2.85**
Facility accredited						
No[a]						
Yes			.39(.39)	1.48	.20(.50)	1.22
Region						
Northeast[a]						
Midwest			-.10(.40)	.91	-.04(.49)	.96
South			-.55(.38)	.58	-.64(.44)	.53
West			-.76(.52)	.47	-.69(.59)	.50
Number of escapes			-.11(.08)	1.11	.04(.12)	1.05
# of obs	539	539	539		539	
# of imputations	10	10	10		10	
F statistic	**4.30*** **	**3.03*** **	**1.80***		**1.66****	

Note: above analyses only include males who were recaptured
[a] reference Category
†p<.10,*p<.05, **p<.01, ***p<.001

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Chapter Conclusion

The analyses presented in this chapter focused on the factors associated with violent escape outcomes. The independent variables in these models were measured at the inmate, incident, and facility levels. As such, this chapter provided a more thorough test of the study's full, integrated theoretical framework, including the deprivation and importation models, management perspective, situational crime prevention, routine activities theory, and self-control theory.

Consistent across most of the models presented above is the notion that opportunity plays an important role in inmates' decisions to use violence during their escapes. Notably, escapees were more likely to use violence if their escape stemmed from secure custody or from outside of the facility. Violence was also more likely to occur in escapes from jails and higher security facilities (compared to lower security facilities). The above models also indicated that incident-level variables generally have better explanatory power than inmate- or facility-level variables when it comes to violent escape outcomes. These findings provide fairly robust support for using situational crime prevention and routine activities theory to understand these correctional incidents.

The next chapter—chapter eight—presents a more thorough discussion of the findings presented in chapters four through seven. In addition to using the findings from these chapters to address the current study's research questions, chapter eight also provides an in-depth discussion of the implications of these findings for research and theory, as well as for policy and practice. As such, chapter eight summarizes, synthesizes, and compares the findings across these chapters four through seven, and offers suggestions to the field for future research and practice.

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Chapter 8: Discussion and Implications of Findings

This chapter first provides a discussion of how the findings from chapters four, five, six, and seven addressed the current study's research questions (see chapter one). Follow this discussion, the remainder of this chapter offers a thorough examination of the implications of these findings for research and theory, as well as for policy and practice.

Implications for the Current Study

RQ1: Jail-level factors and escape

To address this study's first research question, chapter four examined the impact of several independent variables on the reported number of escapes and attempted escapes from jails. It was difficult to determine if those findings conformed to or contradicted expectations based on prior research. Many of the independent variables included in the analyses had not been tested in prior research. In addition, most of the existing research on escapes, and in particular the research on facility-level characteristics associated with escapes, is outdated. Still, chapter four's findings indicated that certain jail-level characteristics improve one's ability to predict how many escapes and attempted escapes a particular facility was likely to encounter.

One notable finding was that larger jails (those with higher rated capacities) reported significantly fewer escapes and attempted escapes than smaller jail facilities. This was contrary previous research which has shown prison size to be positively, albeit not significantly, associated with rates of escape (Anson & Harnett, 1983). While it was not feasible with the current data to explain exactly why this relationship existed, it is possible that larger jail jurisdictions were better equipped to handle various types of inmate misconduct, including escapes and attempted escapes. For example, big jurisdictions may have had larger budgets, provided more systematic and standardized training to their staff, and been subject to more public and media scrutiny than smaller jurisdictions. Each of

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these factors could have contributed to the number of reported escapes and attempted escapes within a jurisdiction.

The ethnic heterogeneity within a jail facility/jurisdiction was also found to be positively associated with the number of escapes and attempted escapes. Thus, jails with racially and ethnically diverse inmate populations experienced a greater number escapes and attempted escapes than otherwise comparable jails. Again, given the restrictions and limitations of the data, it was not feasible to conduct a detailed examination of this finding. Nevertheless, prior researchers have found that ethnic heterogeneity has the potential to weaken community social organization, leading to increased amounts of crime (Sampson & Groves, 1989). As applied to the correctional setting, it is possible that increased ethnic heterogeneity similarly attenuates the trust and social cohesion among inmates, creating supervision challenges for jail administrators. In particular, high levels of ethnic heterogeneity may lead to a greater number of various types of inmate misconduct, including escapes or attempted escapes. In line with this notion, a prior study showed that nearly one-third of surveyed wardens believed racially integrating prison cells would increase the level of violence in an institution (Henderson, Cullen, Carroll, & Feinberg, 2000). However, it is important to note that there is very little other research to corroborate these wardens' belief about racial integration, and other studies have not established a solid link between ethnic heterogeneity in correctional settings and inmate misconduct.

Another unique finding from chapter four was that jails with a greater proportion of noncitizens among their inmate populations reported significantly fewer escapes and attempted escapes. There are two implications of this finding for the current study. First, it is likely that many of the jails with large populations of noncitizens were not representative of the typical jail. A common practice among many jails, especially those in states that border Mexico, is to contract with federal agencies, such as U.S. Immigration and Custom

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Enforcement, to hold undocumented immigrants. These individuals may be in jail for less serious and/or immigration-related offenses than other inmates. As a result, facilities that house a large proportion of noncitizens may have inmate populations that are less at-risk for escaping or attempting to escape than most jails. Administrators may also manage jails with large proportions of noncitizens differently than other jails, which could have also impacted the number of escapes and attempted escapes.

Second, it is possible that noncitizens are simply less likely to escape or attempt to escape from jails than inmates who are citizens. This is somewhat consistent with recent research on the impact of immigration on community-level crime. For example, MacDonald and colleagues (2013) found that neighborhoods with greater concentrations of immigrants have fewer crimes. Thus, the impact of having a concentrated number of immigrants in a jail may behave similarly as it has been found to do in the community setting.

The analyses in chapter four demonstrated that privately operated jails reported more escapes and attempted escapes than publicly operated facilities. These results support some prior studies, but contradict others. For example, Archambeault and Deis (1998) found that two private prisons had more escapes than a comparable public prison, while Culp's (2001) research showed that private prisons had lower escape rates than public prisons. However, there are two important differences between the mixed findings of prior research and the results presented in chapter four. First, both of these prior studies examined how often escapes occurred in private and public *prisons*, while no studies have compared escapes in private versus public *jails*. Because there are many differences between prisons and jails in terms of their inmate populations, management, and administration, it is possible that privatizing prisons and privatizing jails has different effects on escapes and attempted escapes from those facilities.

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Second, it is also important to recognize that prior research is outdated and methodologically limited. The two aforementioned studies were published over a decade ago and used data that were even older. In addition, their findings were based on small samples and relied on basic descriptive or bivariate statistics. The current research examined the number of escapes and attempted escapes from a larger, more nationally representative (though not generalizable) sample of jail facilities. It also used multivariate regression models that controlled for several other facility-level covariates. Thus, chapter four's findings, which demonstrated a positive association between a facility being operated by a private company and the number of escapes, represents a more rigorous and current empirical examination into the issue. Despite these methodological improvements to the current study, there were still several limitations, especially in terms of the validity of the data, which are discussed in detail in the following chapter (chapter nine).

RQ2: Prison-level factors and escape

The findings presented in chapter five helped address the current study's second research question. Several prison-level factors appeared to be associated with the number of escapes and the number of walkaways reported by prison officials. Again, the results of the analyses showed that prisons' rated capacity had a negative relationship with both the number of escapes and the number of walkaways. Again, it is possible that larger prisons had more staff, had bigger budgets, and provided more systematic or standardized training to their staff. Compared to smaller facilities, larger prisons may have also been able to offer a broader array of services and resources to their inmate populations, which could have impacted the rate of escapes and walkaways. Still, while it is not fully clear why larger prisons reported fewer escapes than smaller prisons, it does appear that correctional administrators and staff at larger prisons were able to minimize the number of inmates who escaped or walked away from their facilities.

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One variable that has been found to be an important prison-level correlate of escape in prior research is the average age of the inmate population. Research has indicated that prisons with younger average inmate populations are more likely to experience escapes than other facilities (Anson & Hartnett, 1983; Jan, 1980). This was not confirmed by the current study's analyses. The results presented in chapter five indicated that prisons who hold "primarily youthful offenders" did not report a significantly different number of escapes or walkways than other prisons. Similarly, there was little support for Anson and Harnett's (1983) finding that the ratio of treatment staff to inmates had a greater impact on escapes than the ratio of custodial staff. Of the multiple measures of staffing used in chapter five (i.e., inmate-male correctional staff ratio, inmate-female correctional staff ratio, inmate-male treatment staff ratio, and inmate-female treatment staff ratio), none were significantly associated with escapes, though there was some indication that the inmate to female correctional staff ratio reduced the number of walkways.

Prior research done at the individual-level has shown that men are more likely to escape from custody than women (Chard-Wierschem, 1995; Lyons, 2011). Findings from chapter five seem to indicate that these findings can be extended to studies at the facility-level. Specifically, prisons with a greater proportion of male inmate had more walkaways than prisons with few or no male inmates.

The findings from chapter five may also help clarify some of the inconsistencies identified in the literature. Jan (1980), for example, reported moderate correlation between crowding an escapes, while Anson and Harnett's (1983) more thorough examination of facility characteristics indicated that crowding had no real effect on a facility's escape rate. By separating escapes from walkaways, the current research found that crowding (measured as "percent capacity") was not associated with the number of escapes, but was significantly related to the number of walkaways.

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In contrast to the findings from prior research, as well as chapter four's findings related to jail-level characteristics, the findings from chapter five also indicated that the prisons' operator was not significantly associated with the number of escapes or walkaways. Culp (2001) found that privately operated prisons had lower rates of escapes than those operated by government agencies. The results from chapter five indicated that private prisons may have experienced more escapes than those run my state or federal agencies, but this relationship only approached statistical significance. Thus, the true size and direction of this relationship remains unknown.

One prison-level factor associated with escape proneness was whether the facility was under a court order at the time of data collection. Notably, the direction of this relationship changed based on the outcome included in the model. Facilities under court orders experienced fewer escapes, but more walkways. It was not clear from the data or from prior research why these relationships existed. However, it is possible that the additional scrutiny of being under a court order impacted prison policies or practices enough to reduce the number of escapes. Or, alternatively, it is possible that the underlying reasons for the court order (i.e., poor conditions of confinement) led to a greater number of inmates walking away from the prison or created an environment in which inmates were more easily able to walk away.

Consistent with the findings presented in chapter four on jail characteristics, prisons with larger populations of noncitizens had significantly fewer walkways than other prisons. Again, it is possible that this was because these prisons held individuals with lower risk of engaging in misconduct, including walkaways, such as offenders convicted of immigration or other less serious offenses. This finding also further supports the findings of other studies (e.g., MacDonald et al., 2013), which have showed that more concentrated levels of immigration in a neighborhood were associated with lower crime rates.

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There were two overall themes identified from the findings in chapter five. The first is that escapes and walkaways are a product of opportunity. Many of the prison-level factors that were significantly associated with the outcomes were indicative of opportunity. Perhaps most importantly, both medium and maximum security facilities had significantly fewer escapes than minimum or low security facilities. While one might have guessed that this would be the case, the current study was able to demonstrate empirically that escapes were more likely to occur in facilities with fewer security barriers. This finding is consistent with prior, less methodologically rigorous research (i.e., Anson & Harnett, 1983; Culp, 2005). The presence of a secure perimeter around the prison also provided inmates with very few opportunities to walk away. As a result, any of the unauthorized absences by inmates at prisons with secure perimeters were categorized as escapes. [29]

Opportunity was also important in the number of walkaways from prison. For example, prisons that permitted inmates to leave the facility unaccompanied by staff, as well as those with a greater proportion of inmates on work release, had more walkaways than other prisons. The percent of inmates on work release was also positively associated with the number of escapes. These findings highlight the importance of opportunity in the inmates' decisions to flee from custody. Opportunity might also have explained why prisons that provided alcohol or drug treatment programming reported more walkaways than other prisons. It is possible that lower security prisons, such as halfway houses or minimum security facilities, were more likely to have offered alcohol and drug treatment services than higher security prisons. In this case, the observed relationship between alcohol/drug

[29] As explained in chapter five, it was also discovered that many officials only counted incidents as "escapes" if they occurred from facilities that had a secure perimeter and reported all incidents from facilities without a secure perimeter as "walkaways".

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treatment and walkaways may have actually been spurious and a result of some unmeasured indicator of opportunity.

The second important finding from chapter five is that, while escapes and walkaways were a product of opportunity, these opportunities may have also been mitigated by effective management and service provision. For example, while the proportion of inmates on work release was associated with more walkaways from a facility, having more inmates involved in custodial work assignments significantly reduced the number of walkaways. Thus, providing prisoners with opportunities to constructively use their time while in custody and engage in activities that may lead to long-term benefits appears to have reduced the number of escapes and walkways.

RQ3: Inmate-level characteristics and escape

Most existing escape research has examined the inmate-level demographic and criminal history characteristics associated with escape behavior. By addressing the current study's third research question, the analyses presented in chapter six expanded on this prior literature by using a more rigorous methodology and more current data. According to several previous studies, escapees are most often young (Culp, 2005; Johnson & Motiuk, 1992; Lyons, 2011; Sturrock et al., 1991), white (Cowles, 1981; Holt, 1974; Murphy, 1984; Sandhu, 1996; Stone, 1975; Virginia Department of Corrections, 1978, 1980, 1982) males (Chard-Wierschem, 1995; Lyons, 2011). The results of the current study partially supported these assertions. Age had a significant, inverse relationship with escape behavior such that younger inmates were more likely to escape from prison than older inmates.

Males were also significantly more likely to have been escapees. In fact, the odds of being an escapee were 1.5 times greater for males than females. Though this is consistent with many previous studies, it should be noted that this finding actually contradicts some of the more recent research. In particular, Culp's (2005) comprehensive study found no

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statistically significant difference between men and women in their escape rates. It is possible that these conflicting findings are explained by different methodological approaches. While the current study employed multivariate regression techniques, Culp's (2005) research only included bivariate analyses. It is possible that Culp would have found gender to be a significant predictor of escape if he had held all other individual-level variables constant. As a test of this premise, a bivariate analysis (not shown) was conducted on the data from the National Corrections Reporting Program (NCRP) used in chapter six. The results of this analysis indicated that, as expected, gender was no longer significantly associated with escape ($p>.10$). Thus, by using multivariate analyses, the current study sheds light on some of the discrepancies identified in previous studies.

The analyses in chapter six also revealed that white inmates were significantly less likely to have been escapees than nonwhite inmates. As noted previously, much of the older literature had shown that white inmates were more likely to have been escapees than inmates of other races. Further, more recent studies have actually indicated that race was no longer associated with escape behavior (Culp, 2005), including failures to return (Chard-Wierschem, 1995) and walkaways (Johnson & Motiuk, 1992) from prison. Thus, the findings from chapter six were quite unexpected.

There are two possible explanations for this finding. First, the previous studies again relied on bivariate analyses and did not control for other individual-level demographics or criminal history variables. However, a bivariate analysis of race and escape behavior using the NCRP data from chapter six still indicated that white inmates were significantly less likely to be escapees than nonwhite inmates. The second explanation is that data used in previous studies were more than a decade older than the data used in the current study. As such, it is possible that the changes occurring among prisons and inmate populations over the past decade have resulted in race now having an effect on

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escape behavior. Still, the true relationship between race and escape behavior is unclear and additional research is needed to clarify these contradictory findings.

In addition to these demographic characteristics, prior research has shown that inmates' criminal history is an important individual-level indicator of their propensity to escape. Prior studies have consistently shown that property offenders are more likely to escapes than inmates convicted of other types of crimes (Basu, 1983; Cowles, 1981; Culp, 2005 Holt, 1974; Kentucky Bureau of Corrections, 1979; Murphy, 1984; Stone, 1975; Sturrock et al., 1991; Thornton & Speirs, 1985; Verlag, 1978; and Virginia Department of Corrections, 1978, 1980; see also Lyons, 2011). The analyses in chapter six similarly indicated that property offenders were more likely to have been escapees than inmates convicted of violent offense, though their escape rates were not significantly different compared to inmates convicted of drug or public order offenses. These findings are particularly noteworthy because most of the other studies had not controlled for other individual-level factors.

Still, it is critical to draw attention to the fact that chapter six's analysis also failed to control for some potentially confounding variables, such as the security level of the facility from which the inmate escaped. As indicated in the previous section, escapes are much more likely to occur in lower security facilities than medium or maximum security facilities. Prisoners convicted of a property offense generally receive less severe punishments than those convicted of a violence offense, and were thus more likely to have been serving their time in low or minimum security facilities. Thus, had that analysis controlled for the facility's security level, it is possible that the relationship between conviction offense and escape behavior would have been found to be spurious. At this time, the true reason for the relationship between these variables remains unknown, though future research should strive to control for the security level of the facility.

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The findings presented in chapter 6 indicated that inmates with longer histories of criminal justice involvement were more likely to have been escapees than inmates with less extensive involvement in the criminal justice system. This is also consistent with previous research: Escapees have been found to have more frequent incarcerations than non-escapees (Basu, 1983; Holt, 1974; Kentucky Bureau of Corrections, 1979; Scott et al., 1977; Wharry, 1972). The findings from the current study similarly indicated that both prior prison time and prior jail time were positively associated with escape behavior. It has also been found that escapees were twice as likely to have a history of escape compared to non-escapees (Holt, 1974; see also Cowles, 1981; Murphy, 1984; Sandhu, 1996; Thornton & Speirs, 1985). In the current study, having an escape history increased the odds of an inmate being an escapee by 2.70.

Two other important components of an inmates' criminal history identified in the literature were the length of the sentence being served and the amount of the sentence left to serve. In regards to inmates' current sentence length, authors have suggested that inmates with longer sentences would be more motivated to escape from custody than those serving relatively short sentences (Sturrock et al., 1991). Though empirical findings from older studies have been mixed (Holt, 1974; Morgan, 1967; Scott et al., 1977; Stone, 1975), the current study found that sentence length was actually inversely associated with escape behavior. Inmates with shorter sentences were more likely to escape than those with longer sentences. However, it is again possible that this relationship was also spurious and that inmates with shorter sentences were doing their time in less secure facilities.

The findings in chapter six also show that the percent of the sentence served was negatively related to the likelihood of escaping. This coincides with many other studies which have shown that escapes often occur shortly after inmates begin serving their sentence (e.g., Hilbrand, 1969; Kentucky Bureau of Corrections, 1979; McNeil, 1978;

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Morgan, 1967; New York Department of Correctional Services, 1986; Wharry, 1972). This finding suggests that escapes are, at least in part, driven by motivation as inmates have more reason to escape near the beginning of their sentence. They would be less motivated to wait until their sentences are almost completed to escape, since they would face additional prison time if they are caught.

While motivation appears to play some part in prisoners' escape behavior, the current research also indicates, once again, that opportunity is factored into the escape decision. By far the strongest indicator of escape behavior in chapter six was whether an inmate was under community-based supervision or placement at the time of data collection. Inmates under community-based supervision, such as on work release, were much more likely to have been escapees than inmates not under community-based supervision.

RQ4: Scope of violence

There has been very little research on the frequency and scope of violence that stems from incidents of escape. The limited available research has indicated that violence can occur at three distinct stages of the escapes incident: when inmates first leave correctional custody (the breakout); while the escapees are out in the community (post-breakout); and when the escapees are being subdued and apprehended by authorities (recapture). The descriptive analyses presented in chapter seven attempted to address the current study's fourth research question and identify the amount of violence that occurs during each of these stages.

Prior studies have estimated that between 4.3 percent (Culp & Bracco, 2005) and 8.3 percent (Culp, 2005) of escapees incidents involved violence against staff during the breakout stage. Violence during the post-breakout stage is less frequent, and has been shown to occur in approximately 5.2 percent of escapes (Culp ,2005), but is much less likely to occur in walkaways (Murphy, 1984). Finally, violence during recapture has the least

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frequent occurrence, despite the fact that court decisions have specifically cautioned of the violence escapees are likely to use against law enforcement to avoid recapture (see U.S. v. Gosling, 1994). Researchers from the U.S. Sentencing Commission (2008) found that force or threat of for was only present in roughly one percent of all recaptures in their sample.

Though the descriptive analyses from chapter seven indicate that violence might occur at a slightly higher rate at each of these stages than prior research suggests, the trends are the same overall. Violence was most likely to occur during the breakout, as a little more than ten percent of the escapes resulted in violence at that stage. Violence occurred in fewer escapes, only about eight percent of incidents, in the community after the breakout. Violence was least likely to occur at recapture: Less than six percent of escapes resulted in violence at that stage. Moreover, nearly 20 percent of all escapes were violent at some point during the incident. Despite these seemingly higher estimates of violence, there are two characteristics of the data that provide context to these findings.

First, the data used in chapter seven—from the *Correctional Incident Database, 2009* (CID)—used a very broad definition for violence. As such, an escape was considered to be "violent" if the escapee merely pushed a correctional officer out of the way to facilitate the escape or struggled with the arresting officer to resist arrest. It is not clear how violence was measured in previous studies, though it is possible that they used more stringent indicators of violence. Second, it is likely that data in the CID were actually biased toward violence. The CID used an open-source search protocol, drawing primarily from various news sources, to identify its sample of escape incidents. Newspapers, especially major national newspapers, are more likely to cover sensational escape incidents because they are more "newsworthy" than the mundane incidents that are more representative of the typical escape (Peterson, 2014). Decades of research have similarly demonstrated that newspapers exaggerate the amount of violent crime that occurs in the community (e.g., Beckett, 1997;

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Davis, 1952; Harris, 1932; Marsh, 1991). As such, the CID's data collection protocols likely led to an overrepresentation of violent and otherwise unique/sensational incidents.

Other findings from chapter seven relevant to the fourth research question were related to the various measures of the scope of violence. As indicated in the above paragraph, violence in the CID encompassed a range of actions, including shoving, punching, stabbing, and shooting. Thus, the descriptive analyses in chapter seven also examined several other indicators of the scope and seriousness of violence. Approximately nine percent of the escapes in the CID involved violence and resulted in at least one minor injury (i.e., a contusion, laceration, broken bone, or some other injury as noted in the open source material), while around one percent of all escapes involved violence and resulted in at least one death. Similarly, very few escape incidents involved the taking of hostages or the use of a weapon. These findings indicate that, despite the relatively high overall occurrence of violence (nearly 20 percent), violence was rarely very serious and infrequently led to worse outcomes, such as injuries or deaths.

RQ5: Facility-level factors and violence

The analyses in chapter seven address the current study's fifth research question. The most robust facility-level indicator of whether an escape resulted in violence was the security classification of the facility from which the escape occurred. Inmates who escaped from jails or medium/maximum security prisons were significantly more likely to use violence during their breakouts than those who escaped from minimum security facilities or work release centers. These inmates were also more likely to use violence at some point overall during the escape process than inmates who escaped from lower security facilities.

This finding is particularly interesting given the lack of attention jails have received in prior escape research. One possible explanation for the amount of escape-related violence in jails is that, compared to most state and federal prisons, the jails may create unique

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challenges for administrators and staff to effectively manage their inmate populations. Jails typically hold an array of high- and low-risk offenders who are awaiting trial, serving short sentences, or awaiting transfer to a state or federal prison. Despite this mixed inmate population, most jails are small, with nearly 40 percent of all jail facilities holding fewer than 50 inmates (Stephan & Walsh, 2011). Jails also tend to be independently operated, and experience rapid population turnover (Minton, 2013).

It is possible that these unique challenges prevent jail staff from following best practices in terms of how they house and manage their inmate populations. For example, staff may not always have the resources or space available to separate inmates according to their level of risk. As a result, some high risk jail inmates may be placed in a housing unit without adequate security features. High risk inmates may be more likely to attempt to break out of these facilities and more likely to use violence to facilitate their escape, creating more opportunity for violence to occur. Additionally, given that jails are often independently operated and may have smaller budgets than prisons, it is likely that some jails may not have modern security features across their entire facility. A qualitative examination of the information in the CID supports this assertion. Several of the escapes from jails included in the CID occurred as a result of a malfunctioning, inadequate, or outdated security feature, such as broken door locks or unsecure windows. Again, these situations created more opportunity for violence when staff attempted to stop inmates from escaping.

Another potential reason for the differences between jails and minimum security prisons in violent escape outcomes is the difference in their inmate populations. While jails often hold low-risk offenders charged with or sentenced for minor crimes, they also hold individuals awaiting trial or transfer to a state prison for very serious, violent crimes. Conversely, minimum security facilities and work release centers rarely hold serious

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violent offenders, unless they are nearing the completion of their sentence. Thus, jail inmates may be more prone to using violence during their escape than low-risk, nonviolent offenders. This also explains why inmates who escape from medium or maximum security facilities are also more likely to use violence than those who escape from minimum security facilities or work release centers.

Aside from the classification of the facility, very few other facility-level characteristics were associated with violent escape outcomes. In addition, these structural factors only appear to be useful in understanding if an escapee will use violence during the breakout or overall. Facility variables were generally not useful for explaining when violence would occur in the community or during recapture.

RQ6: Incident-level variables and violence

The analyses in chapter seven also addressed the current study's sixth research question. Compared to variables measured at the facility- or inmate-level, those measured at the incident-level were the best for understanding when escapes were likely to result in violence. Accordingly, incident variables were the strongest and most significant indicators of violence in the full models (those that included all three levels of variables) presented in chapter seven. Although there were again no incident-level variables associated with violence during recapture, two incident variables, in particular, were useful for explaining violence at various stages of the escape incident: whether the escape occurred in secure custody and the location of the incident. Escapes from secure custody were significantly more likely to be violent at the breakout, in the community, and overall than escapes from nonsecure custody. This is consistent with the findings from the U.S. Sentencing Commission's (2008) report on escapes. They found that three indicators of violence—the presence of force or the threat of force, a dangerous weapon, and bodily injury—were much more likely to be present in escapes from secure custody.

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The results presented in chapter seven also indicated that the location of the incident was an important indicator of violence. Escapes that occurred outside of the facility were more likely to be violent overall than those that occurred inside the facility. Given these two findings, it appears as though escapes from *secure* custody *outside* of the facility (e.g., escapes during transport, court appearances, or offsite medical visits) were substantially more likely to have been violent overall than those *inside* of the facility and from *nonsecure* custody (e.g., walkaways from minimum security facilities or work release centers). Both Culp and Bracco (2005) and the U.S. Sentencing Commission's (2008) similarly found that escapes during transport were more likely to have involved violence against prison staff than other types of escapes.

This finding, again, indicates that both opportunity and motivation play a role in the inmates' decision to escape from custody, and subsequently whether they will use violence to facilitate their escape. Inmates who escaped from nonsecure custody had no reason—or even opportunity, since there was no staff watching them—to use violence to facilitate their breakouts. However, inmates who were being transported to another facility, an offsite court appearance, or a medical visit, generally had fewer barriers to overcome than those who were inside of a secure facility. For instance, there were no high walls or fences with barbed wire to climb over or tunnel under and there were fewer staff to run from or overpower. Thus, inmates in these situations may have seen an opportunity to escape that might otherwise not have been there and have been more likely to use violence to ensure the successful completion of their escape.

Inmates who escaped from secure custody may also have been more motivated to escape. Inmates were generally only placed in nonsecure custodial settings (e.g., work release, unaccompanied furloughs, or minimum secure facilities with no fences) when they had less reason or motivation to flee. These inmates were typically low-risk offenders who

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were convicted of minor offenses and serving short sentences (or had only a fraction of their sentence left to serve). Conversely, inmates in secure custodial settings in jail or prison (e.g., in a secure facility or being transported somewhere offsite) were often inmates who had or who were facing long sentences and were thus at a higher risk for escape. Thus, these inmates may have been more motivated to flee from custody and more willing to use violence to facilitate their escape.

Two other significant incident-level indicators of violence—whether the escape was planned and whether there was a catalyst event that triggered the escape—also indicated that inmates who were more motivated to escape from custody may also have been more willing to use violence. Escapes were more likely to be violent when there was evidence that the incident was planned, such as if the escapee told others about the escape before it happened, left a note about the incident, or took steps that clearly indicated planning (e.g., cutting a hole through a wall or smuggling something into the prison that was used for the escape). Inmates who made a plan to escape were often those who were serving or facing long sentences. As such, these escapees may have been more determine to escape and more willing to use violence.

Inmates who experienced some sort of catalyst event prior to their escape may also have been more motivated to leave custody, and thus more likely to use violence. Some examples of catalyst events in the CID that triggered violence include inmates learning about additional pending charges against them, facing punishment after being caught with contraband, and hearing about family issues back at home. Again, because these inmates had more of a reason to flee from custody, they may have been more likely to use violence to ensure the success of their escape.

A final incident-level indicator of violent escape outcomes was the time at which the escape occurred. Escapees were more likely to use violence if they broke out of custody in

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either the morning (6:00am-11:59am) or evening (6:00pm-11:59pm) hours compared to those who escaped during the middle of the day (12:00pm-5:59pm) or very early in the morning (12:00am-5:59am). This may have been because inmates chose to quietly sneak away of custody, rather than use violence to facilitate their breakout, at times when inmates and staff were occupied with other duties. For example, staff members watch inmates in the middle of the day as they perform their daily chores, go to their jobs, or do their programming. Inmates may also have been asleep during the early morning hours with fewer staff members actively patrolling during at that time. Thus, escapes at these time periods may provide inmates with more opportunity to escape undetected and without using violence than the escapes when inmates and staff may be more alert, such as when inmates are going to and returning from work assignments, programming, etc. (i.e., in the morning and evening).

RQ7: Escapee characteristics and violence

Finally, the analyses in chapter seven attempted to address the current study's seventh research question. There were three escapee characteristics in chapter seven that were generally associated with the likelihood of escapees using violence. First, there was some indication that younger escapees were less likely to use violence during their breakout, in the community, and overall, than older escapees, although age only approached statistical significance in some of the models. This finding is supported by seminal works in criminology (Gottfredson & Hirschi, 1990; Sampson & Laub, 1993), which posit that individuals desist from crime generally, including violent behavior, as they age.

The second individual characteristic associated with violent escape outcomes was whether the escapee had a history of escape behavior. Those who had a history of escaping from correctional custody in the past were significantly more likely than other escapees to use violence during the breakout and overall, and were marginally ($p<.10$) more likely to

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use violence in the community. Though the exact reason for this relationship is not clear, inmates who have successfully escaped from custody in the past may have been more confident to attempt to do so again. It could also be that inmates with a history of escape behavior simply had longer histories of criminal justice involvement and were thus generally more likely to engage in criminal and other risky behaviors (see Gottfredson & Hirschi, 1990).

Finally, inmates who were in custody for a violent offense were more likely to use violence at some point during the escape incident than those in custody for a property, drug, or other nonviolent offense. This finding suggests that inmates who had engaged in violence in the past were more likely to use violence during the escape to ensure they were successful in fleeing from custody. While escapees' age, escape history, and committing offense were significant indicators of violence in some of the models presented in chapter seven, these variables did not remain significant in the full models that included variables from all three levels (i.e., facility-, incident-, and escapee-level). Thus, these escapee-level characteristics do not appear to be as important for understanding when violence will occur in an escape as the other variables, particularly those measured as the incident-level.

Implications for Research and Theory

There are several theoretical implications of the current study. One goal of this study was to examine how well established criminological theories of institutional misconduct (i.e., the deprivation model, importation model, management perspective, situational crime prevention, routine activities theory, and self-control theory) could be used to study escapes from custody and violent escape outcomes. The findings presented and discussed above provided very little support for the deprivation model, which holds that institutional misconduct occurs as a result of the deprivations inmates experience in correctional settings (Sykes, 1958). One commonly used measure of deprivation is

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overcrowding (McCorkle et al., 1995). In the current study, percent capacity was not significantly associated with the number of escapes or attempted escapes from jail, escapes from prison, or any of the violent escape outcomes. Moreover, percent capacity actually had a significant *negative* relationship with the number of walkaways from prison.

There was, however, some support in the current study for the importation model and the management perspective. The central tenet of the importation model is that misbehavior stems from the inmates' characteristics and experiences that they brought with them into prison (Irwin & Cressey, 1962). Researchers have tested the importation model by examining the degree to which misconduct can be explained by individual-level factors, such as gender, age, race, education, and criminal history (Akers et al., 1977; Cao et al., 1997). Confirming some of these findings, inmates with longer, more extensive histories of criminal justice involvement were more likely to have escaped from prison (see chapter six). Inmates with a history of escape were also more likely to escape again, which points more to an underlying individual tendency (i.e., the importation model) than a structural facility-level issue.

The importation model can also be useful for explaining the findings related to violent escape outcomes (chapter seven). Consistent with the importation model, younger inmates were more likely to have used violence during their escapes than older inmates. In addition, none of the female escapees engaged in violence at any stage during the escape incident. Inmates who were in prison or jail for a violent offense were also more likely to use violence during their escape, indicating that their tendency to engage in violence may have stemmed from the values or experiences they "imported" with them to prison and not from deprivations associated with the custodial environment.

The management perspective holds that institutional misconduct is a result of ineffective or failed management and that correctional administrators are responsible for

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managing their inmate populations (DiIulio, 1989). While this study did not include any direct measures of effective management, the size of the facility is often used in empirical tests of the management perspective. The findings from chapter seven indicated that larger jails reported fewer escapes and attempted escapes than smaller jails, and that larger prisons reported fewer escapes and fewer walkaways than smaller prisoners. In addition, some inmate populations appeared to have been easier for staff to manage than others. For example, jails with a high proportion of noncitizens and low racial and ethnic heterogeneity had fewer escapes and attempted escapes than other jails. Prisons with a higher proportion of noncitizens also reported fewer walkaways than other prisons.

There was also some indication from the findings across chapters four, five, and seven that privately operated facilities experienced more escapes, and that these escapes were more likely to be violent compared to escapes from facilities operated by the government. Under the management perspective, it would appear that public facilities are more effective at minimizing the number of escapes and preventing violence compared to private facilities. However, this interpretation was not fully supported given that many of these results were only marginally significant ($p<.10$). Future research should continue to examine the relationship between the facility's operator and these outcomes.

As indicated by the discussions of the current study's findings presented earlier in this chapter, theories that take into account both opportunity and motivation appear to be the best for explaining when escapes will occur, as well as when they are likely to be violent. Situational crime prevention and the routine activities framework are particularly well-suited for examining opportunity motivation. Situational crime prevention focuses on the settings in which crime occurs and has been effective at explaining opportunistic crimes (Clarke, 2009). The findings presented here strongly support the notion that the setting influenced inmates' decision to escape from custody. For instance, Medium and maximum

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security prisons reported significantly fewer escapes than minimum security facilities because lower security facilities did not provide inmates with as many opportunities to escape (see chapter five). Further, prisons with a greater proportion of inmates on work release, and those that allowed inmates to leave unaccompanied by staff, experienced significantly more walkways. At the individual level, inmates who were on community release were much more likely to have been escapees than those who were not on community release (chapter six). Again, this is because work release, community release, and other authorized releases from prison provide inmates with the opportunity to remain in the community rather than returning to custody.

Situational crime prevention can be particularly useful for understanding when escapes are likely to be violence. Compared to facility and inmate variables, the situational factors (i.e., the incident variables) examined in chapter seven were the best predictors of when an escape would result in a violent outcome. Escapees were more likely to use violence if they escaped outside the facility, from secure custody, and/or during particular times of the day.

Routine activities theory is another opportunity-based theoretical framework that is useful for understanding when escapes will occur and when they will lead to violent outcomes. Routine activities theory maintains that crime is most likely to occur when three elements—motivated offenders, suitable targets, and a lack of capable guardianship—converge in time and space. In line with this theoretical framework, the findings of the current study demonstrated that inmates who were particularly motivated to escape may have been more willing to use violence. Inmates who planned their escape and those whose escape was triggered by a catalyst event were more likely to use violence than other escapees.

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Medium and maximum security facilities had fewer escapes than lower security facilities, but escapes from these high security facilities were more likely to be violent. Both of the findings are explained by the routine activities framework. Higher security facilities provide more "capably guardianship" in the form of fences, walls, guard towers, etc., thus preventing more escapes than lower security facilities. However, inmates who do manage to escape from medium and maximum facilities are likely more motivated to leave (because they are serving longer sentences, facing more serious charges, or have more of their sentence left to serve) than inmates in minimum security facilities or work release centers. As such, these inmates are likely more determined to flee from custody and more willing to use violence to help them escape.

The current study's findings have many implications for future research. One theory that was not well-tested in the current research was self-control theory (Gottfredson & Hirschi, 1990). This theory, which is compatible with the opportunity-based theories of situational crime prevention and routine activities, holds that people will engage in criminal behavior when they have both 1) low self-control and 2) the opportunity to engage in crime. Although analyses presented here did not include an adequate measure of self-control, there was some support for this theory. For example, age was negatively related to both escape behavior and escapees' likelihood of using violence. This is consistent with Gottfredson and Hirschi's expectation that individuals will commit fewer crimes as they become older. Moreover, self-control theory would also explain the study's overarching finding that inmates are more likely to escape when there is an opportunity to do so. In other words, inmates with low self-control may simply escape when there is an opportunity to escape, regardless of the potential consequences. This is further supported by the finding that sentence length was *inversely* associated with an inmate's escape likelihood (i.e.,

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inmates with shorter sentences were more likely to escape than those with longer sentences) in chapter six.

Future research should continue to examine the ability of self-control theory to explain escape behavior and violent escape outcomes. One way to accomplish this would be to sample a group of escapees and a comparison group of inmates who have not escaped from custody and administer a survey measuring self-control. This survey could include several different measures of self-control, such as the 24-item scale developed by Grasmick and colleagues (1993), as well other measures related to behaviors "analogous to crime", such as other types of prior criminal and harmful behaviors (for examples, see Delisi, 2001; Keane et al., 1993).

In addition to studying the role of self-control in escape, future research should focus on how the design and built environments of correctional facilities impact escapes from custody. There has been recent interest in criminological and criminal justice research to examine how the design and architecture of correctional facilities influence institutional misconduct. For example, direct supervision correctional facilities have been found to be effective in reducing assaults and other serious incidents (Wener, 2006). The architectural design of prisons has also been found to impact rates of nonviolent misconduct (Morris & Worrall, 2014). Still, these findings have not been extended into escape research. While the findings presented in the current study indicate that escapes occur less frequently in higher security facilities, it is not clear which specific security features, or constellation of features, are most effective at preventing escapes. Similarly, other recent work has begun to evaluate the effectiveness of security technologies in preventing escapes, such as CCTV, Metal Machine, Block Phone, X-ray, and Phone Records (Vachiradath, 2013), but researchers should continue to examine how particular facility designs or features (e.g., type and height

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of external barriers, electronic sensors, inmate locator systems, camera placement, etc.) affect the number of escapes from these facilities.

Another implication for future research is the need for a greater focus on escapes from jails, which have been largely ignored in the literature. More than half of the escapes included in the CID occurred from a jail, and inmates who escaped from a jail were more likely to use violence during the incident than those who escaped from prison. Thus, it is important that future research continues to examine what jail-level factors contribute to both of these outcomes. In particular, there should be an emphasis on the unique characteristics of the jail environment, such as their management structures and inmate populations, and how these contribute to escapes and violent escape outcomes.

Though somewhat unrelated to the current study, there are two final recommendations for the direction of future research. First, there is a consensus in prior research that the number and rate of escapes from prison have declined rapidly over the past few decades (Culp, 2005; Useem & Piehl, 2006). However, there have been no strong empirical studies explaining why this trend exists. Useem and Piehl (2006) argued that changes in political and correctional leadership made prison management more effective between 1980 and the turn of the century, and Culp (2005) suggested that changes in prison populations (i.e., fewer young, white, male property offenders) and the construction of higher security prisons may have contributed to the decline in the number and rate of escapes. However, neither of these hypotheses has been empirically tested and several other factors may have contributed to the decline of escapes over time, such as the increased use of direct supervision facilities, the modernization of correctional security features, and the widespread use of actuarial risk assessments for inmate classification. Future research, therefore, should use longitudinal analyses, such as time series designs or panel models, to further examine what processes and changes accounted for the drop in

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prison escape incidents. Additionally, there is no research on whether this trend observed in prisons was mirrored in jails.

The second recommendation for future work is to better understand what factors contribute to inmates' recapture. Previous research has estimated the rate of recapture to be around 75 percent (Culp, 2005), while data from the CID indicate that more than 90 percent of inmates are recaptured after escape (see chapter seven, Table 8). Yet, there has not been any research examining how long inmates are out of custody on average before they are recaptured, or if any inmate-, incident-, or facility-level factors contribute to the speed of their recapture. This type of research could answer policy-relevant questions, such as: "are inmates who escape from jail captured more quickly than those who escape from prison" or "are escapees charged or convicted of violent or other serious offenses captured more quickly than those charged or convicted of less serious crimes".

Implications for Policy and Practice

One finding from this study is that more escapes occur in lower security facilities than higher security ones. One possible policy implication of this finding is to simply reduce the number of inmates that are sent to lower security institutions. However, this would not be good practice and could have unintended consequences, such as over-classification. Classification is the practice of designating an inmate to a particular facility and level of supervision (Austin, 2003) and over-classification occurs when an inmate is designated to a higher level of security than necessary. Over-classification would be a problem for correctional administrators. For example, the current study's findings showed that inmates who escaped from lower security facilities were significantly less likely to engage in violence and posed less danger to correctional staff and the public. Because it is more expensive to house individuals in high security facilities, over-classification could be a substantial burden to corrections budgets. In addition, escapes from any facility, regardless of its

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classification level, are rare events. As such, over-classification could lead to many inmates who pose little escape risk being housed in higher security facilities.

Similarly, because the current study found that escapes and violent outcomes are, at least in part, a product of opportunity, one could also argue that policymakers and correctional administrators should implement opportunity-reduction strategies in correctional facilities to prevent escapes. However, policies and practices focused solely on taking away opportunities for escape could have other unintended negative consequences. For example, the deprivation model holds that depriving inmates of things like programs and services can actually lead to even more institutional violence and misbehavior. Thus, carelessly reducing opportunities for escape could actually lead to an increase in other types of institutional misbehavior.

Research also shows that certain practices or policies that provide inmates with opportunity to escape, such as work release programs or furloughs, can actually reduce recidivism and improve public safety. An early study of Massachusetts's state correctional institutions showed that individuals who experienced at least one furlough while they were in prison were less likely to return to criminal behavior than offenders who were not granted a single furlough (LeClair, 1978). Additionally, the recidivism rates of federal inmates who received at least one furlough were less than half the recidivism rates of those who had no furloughs (Harer, 1994). Thus, administrators must balance the need to prevent escapes with making management decisions that can minimize other forms of institutional misconduct and improve future public safety. In other words, while escapes and violent outcomes might be a result of opportunity, *they can also be minimized by effective management and service provision.*

Another opportunity-reduction strategy that could be seen as a policy implication of the current study is target hardening. Target hardening is the practice of making targets

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less attractive, for example by using home security devices or cameras to prevent theft (Massey, Krohn, & Bonati, 1989). For escapes, this could mean even more target-hardened correctional facilities that resemble fortresses, complete with guards, motion detectors, cameras, electric fences, etc. However, there is evidence that some targeting hardening strategies, such as CCTV may not be effective at preventing escape (Allard et al., 2008; for other critiques of applying situational measures to prison, see Bottoms et al., 1995; Sparks et al., 1996). Target hardening should not be regarded as the only appropriate policy response to the current study's findings and should only be considered as part of a suite of other changes to policy and practice. In fact, arguing from a situational crime prevention perspective, Wortley wrote: "when situational principles are applied systematically in prion there is the potential to design a *less* fortress-like environment (2002, 10; emphasis in original). Some examples of this include replacing metal bars over windows with special unbreakable plastic and replacing towering walls with electronic perimeters. Thus, aside from making targets less attractive, situational measures can also be used to reduce prisoners' negative emotions, which can make it easier for administrators to control misbehavior (Wortley, 2002).

Wortley (2002) also used the situational crime prevention framework to develop several strategies specifically aimed at minimizing escape behavior. These include modifying the environment (e.g., increasing perimeter security), providing counseling to inmates, allowing more home visits and furloughs, offering more programming in the prison, and protecting inmates when their safety is threatened. A summary of these proposed strategies for policy and practice can be found in Table 14.

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Table 14. *Situational Strategies for Controlling Escapes*

Intervention	*Precipitation-control Category*	*Regulation-control Category*
▪ Functional Unit Management	▪ Setting positive expectations ▪ Controlling environmental irritants	
▪ Improved Perimeter Security		▪ Target Hardening
▪ Reduced population density	▪ Reducing crowding	
▪ Graduated reductions in security level		▪ Target Hardening ▪ Increasing costs
▪ 'Strict' discipline, structured regime		▪ Deflecting offenders ▪ Formal surveillance ▪ Increasing costs
▪ Publicize risks		▪ Increasing costs
▪ Publicize punishments		▪ Making an example
▪ Responding to requests for protection/transfer	▪ Reducing frustration[a]	▪ Deflecting offenders ▪ Target hardening
▪ Programs/work opportunities	▪ Reducing frustration[a]	▪ Deflecting offenders
▪ Counseling and pastoral care	▪ Reducing frustration[a]	
▪ Compassionate visits/phone calls	▪ Reducing frustration[a]	

Source: Wortley (2002, 188)

[a] This category refers to the ability of the intervention to alleviate frustration among inmates that can be caused by the institutional environment

In terms of mitigating violent escape outcomes, one implication from the current research is to develop policies that focus on situations in which the inmate is in secure custody and outside of the facility, since these circumstances were strongly associated with violence. Thus, potentially violent situations include transporting inmates to other facilities and taking them to court appointments or offsite medical visits. For these reasons, it is important for correctional staff to follow best practices and standards when transporting or escorting inmates outside of the facility. One such set of best-practice guidelines published by the American Correctional Association suggests the following (Mason, Burke, & Owen, 2013):

- Segregate inmates by security classification when possible and practical.
- Follow the department' maximum-level supervision procedures (e.g., full restraints, etc.) if even one inmate in a group is under maximum-security.

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- Use multiple routes to offsite destinations (such as medical facilities) so the inmate does not know the route that will be taken for a given trip.
- Avoid routes with known traffic delays or dead ends.
- Know the exact drop-off and pick-up points before inmates get into a transport vehicle.
- Use inconspicuous transport vehicles that blend into surrounding traffic.
- Properly inspect transport vehicles, as well as other security equipment such as communication devices, before leaving the facility.
- Regularly search the transport vehicle for contraband and weapons, including before and after inmates enter and exit the vehicle.
- Regularly check inmates' restraints prior to departure and upon arrival to the offsite location.

Though not a direct implication for policy or practice, it is critical to point out that the conclusions drawn here did not support the assumption that escapes are inherently violent. On the contrary, the findings from chapter seven indicated that violence was rare and appears to have been precipitated by certain situational factors, occurring under a particular set of circumstances. In addition, when violence did occur, it was often relatively minor (e.g., an inmate pushing an officer as he/she breaks out of custody). In the very rare cases when escapees committed more serious acts of violence, they were often charged with a separate violent crime (e.g., assault) in addition to being charged with escape. For these reasons, there is little support for federal judges' decision to sentence individuals with histories of escape under the 1984 ACCA.

Likewise, state legislatures should pass laws that assign punishments to escapees based on the seriousness of, and the circumstances around, their escape incident. For example, escapes that actually result in some sort of violence (e.g., force, threat of force, use of weapon) should be punished more severely than incidents such as AWOLs or walkaways. Escapes could also be punished differently if they occur in secure custody, since that situation creates more opportunity for violence than inmates who escape from nonsecure

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custody. While this recommendation is not a new concept, and many laws already differentiate between types of escapes, this practice is not standard across states.

It is also recommended that correctional administrators have more flexibility to use internal mechanisms to punish escapees, rather than charging all escape incidents as new crimes that can unnecessarily add more time to an inmate's sentence. For example, there are several escape incidents in the CID where individuals simply returned late from an authorized release (e.g., a furlough or work release) and were subsequently charged with escaping from custody—a crime in many states that carries a maximum of several additional years in prison. One particular example in the CID involved an inmate with no previous criminal history who, after receiving a 30-day jail sentence, walked away from the jail's custodial work crew to visit his family. This escapee was subsequently given a two-year prison sentence for the incident. In situations like these, it would be in the best interest of both correctional administrators, and the escapees, if these incidents could be dealt with through internal mechanisms, such as administrative segregation, loss of good time, or some other loss of a privilege. This is already a standard practice in both jails and prisons for other forms of minor misconduct (e.g., contraband violations, possession of stolen property, and other misbehavior) and should be extended for punishing escapes.

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Chapter 9: Conclusion

This dissertation examined the impact of inmate-, incident-, and facility level factors on escapes from custody and violent escape outcomes. It identified jail-level characteristics associated with the number of escapes and escape attempts from jails (chapter four), prison-level characteristics associated with the number of escapes and the number of walkways from prisons (chapter five), characteristics of the inmate associated with individual escape behavior (chapter six), and inmate-, incident-, and facility-level factors that impact the likelihood of an escape resulting in violence across several stages of the incident (chapter seven). The significant findings from these chapters are summarized in Table 15 below.

These findings provided support for some of the classic sociological theories of institutional misbehavior, including the importation model and the management perspective, while failing to provide support for the deprivation model. One meaningful implication of the current study for research and theory was the findings that the situational crime prevention and routine activities frameworks were most useful for understanding when escapes are likely to occur and when they are likely to result in violence. Findings indicated that offender motivation and opportunity, among other situational factors, played crucial roles in both of these outcomes.

This dissertation also provided several recommendations for policy and practice. Notably, policymakers and correctional administrators should examine strategies based on situational crime prevention, including offering more homes visits, furloughs, counseling, and opportunities for work and other types of programming. It was also recommended that correctional staff and administrators pay close attention to the policies and practices for circumstances in which violence is likely to occur, such as during inmate transport.

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Table 15. *Summary of Significant Findings*

Significant Variables	*Finding*
Chapter Four: Jail Characteristics and Escape	
Rated capacity	Larger jails had fewer escapes and attempted escapes
Ethnic heterogeneity	Jails with racially diverse inmate populations had more escapes and attempted escapes
Percent noncitizens	Jails with more noncitizens had fewer escapes and attempted escapes.
Privately operated	Privately operated jails had more escapes and attempted escapes
Region	Jails in the South had fewer escapes
Chapter Five: Prison Characteristics and Escape	
Rated capacity	Larger prisons have fewer escapes and walkaways than smaller prisons.
Percent capacity	Prisons that were more crowded had fewer walkaways.
Percent male	Prisons with larger male populations had more walkaways.
Percent noncitizens	Prisons with more noncitizens had fewer walkaways.
Percent on work assignment	Prisons with more inmates on work assignment had fewer walkaways.
Percent on work release	Prisons with more inmates on work release had more escapes and walkaways.
Inmate-female corr. staff ratio	Prisons with greater inmate to female correctional staff ratios had fewer walkaways.
Alcohol or drug treatment	Prisons offering alcohol or drug treatment had more walkaways.
Inmates from other authorities	Prisons with more inmates from other authorities had more walkaways.
Court order	Prisons under a court order had fewer escapes but more walkaways.
Inmates permitted to leave	Prisons permitting inmates to leave had more walkaways.
Secure perimeter	Prisons with a secure perimeter had more escapes but fewer walkaways.
Security level	Medium and Maximum security prisons had fewer escapes.
Region	Prisons in the Midwest, South, and West had fewer escapes.
Chapter Six: Individual-Level Characteristics and Escape	
Race	White inmates were less likely to have been escapees.
Sex	Males were more likely to have been escapees.
Age	Older inmates were less likely to have been escapees.
Prior prison time in months	Inmates with longer prior prison time were more likely to have been escapees.
Prior jail time in months	Inmates with longer prior jail time were more likely to have been escapees.
Prior escape	Inmates who have escaped before were more likely to have been escapees.
Current offense	Property offenders were more likely to have been escapees.
Counts of current sentence	Inmates with more counts were less likely to have been escapees.
Sentence length in months	Inmates with longer sentences were less likely to have been escapees.
Percent of sentence served	Inmates who served less of their sentence were less likely to have been escapees.
Community release prior	Inmates released to the community were more likely to have been escapees.

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Season	Inmates released in spring were more likely to have been escapees.
Chapter Seven: Violent Escape Outcomes	
Inmate variables	
Age	Older escapees were less likely to have used violence; not in the full model.
Committing offense	Violent offenders were more likely to have used violence; not in the full model.
Escape history	Those with prior escapes were more likely to have used violence; not in the full model.
Incident variables	
Evidence of planning	Planned escapes were more likely to have been violent.
Catalyst event	Escapes triggered by a catalyst event were more likely to have been violent.
Start time	Escapes in the morning or evening were more likely to have been violent.
Incident location	Escapes from outside of the facility were more likely to have been violent.
Secure Custody	Escapes from secure custody were more likely to have been violent.
Facility variables	
Classification	Escapes from jails or higher security facilities were more likely to have been violent.

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Limitations

There were several limitations to the current study. One critical limitation was the use of administrative data in chapters four, five, and six. There are many issues with administrative data that affect their validity. Compared to surveys and other primary data collection efforts designed to support research, administrative correctional data are collected and tracked by prison and jail administrators to count and monitor inmates, make housing and program assignments, and inform other administrative decisions. As such, the data used in these chapters had to be modified and recoded in order to develop measures that were relevant to the current study's theoretical framework. In many cases, however, they were still imperfect measures. For example, the analyses of the individual characteristics associated with escape behavior (chapter six) would have benefited from a more refined measure of whether the inmate had engaged in previous escape behavior.[30]

Other issues that may have affected the validity of these administrative data stem from the way they were compiled. The Bureau of Justice Statistics (BJS) requested these data from jail and prison administrators around the country before they cleaned, recoded, and compiled the data into the datasets that were used in the current study. This process has the potential to introduce bias. Administrators from different jurisdictions may have varying definitions of key indicators, making it difficult to report on these data across jurisdictions. Nowhere was this more evident than in the *National Corrections Reporting Program's* (NCRP) data on type of release. As discussed in chapter six, the reported number of releases categorized as "escapes" appear to have been over-represented (or at least highly concentrated) in some states, such as Alabama (see chapter six, footnote 17).

[30] This measured did not account for whether an inmate had ever been charged or convicted of an escape; rather, it simply indicated whether any of the inmate's current offenses was categorized as "escape".

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Another potential source of bias is inaccurate reporting. There are several reasons correctional administrators might possibly inaccurately report their data. For example, they may intentionally report numbers that make their correctional system and/or a particular facility look better than it really is (e.g., reporting lower crowding). They may also *unintentionally* report inaccurate numbers as a result of erroneous data entry or confusion over what BJS was requesting.[31]

In addition to the issues with administrative data, another limitation of the current study is that each of the datasets used in the current study had different definitions of "escape", making it difficult to compare results across analyses. The *2011 Annual Survey of Jails* (ASJ), for instance, combined escapes and escape attempts, even though these can be seen as different behaviors. Escapees pose a greater threat to the public (See Carlson, 1990; Culp, 2005) than inmates who fail to make it out of custody. Moreover, under a situational crime prevention and routine activities framework, attempted escapes are not as important as completed escapes. In fact, if a facility has more attempted escapes than completed escapes, one could make the argument that this is a measure of the facilities' effectiveness or success under these theoretical frameworks.

Another limitation of the data is that most of the samples were not representative of their respective populations. The ASJ intentionally oversampled large jails by including with certainty all jail jurisdictions that hold at least one juvenile with an average daily population (ADP) of 500 or more and all jail jurisdiction that hold only adults with an ADP

[31] There is also some indication that administrators may occasionally provide estimates or "guesses" for certain numbers when that information is not readily available to them. For example, during the course of analyzing and gathering data for the current study's analyses, the author observed cases in which reported numbers from different data sources did not match one another, despite the fact that they covered the same period of time. For example, one data source might report the 2009 average daily population of a facility as 100 while another source might report 115. On most occasions, these numbers did not substantially differ from one another.

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of 750 or more. This is especially concerning since fewer than 11 percent of all jails hold more than 500 inmates (Stephan, 2011). The data in the *2005 Census of State and Federal Adult Correctional Facilities* (prison census) are likewise not generalizable to the entire population of prison facilities as this dataset excludes juvenile facilities. Further, the escapee group derived from the NCRP was not representative of the national population of escapees. There appeared to have been issues with how different states classified a release as an "escape", because some states were overrepresented in the escapee sample (most notably, Alabama). While the comparison group of other types of releases was matched to the escapee group by state, there are still consequences for the generalizability of these data.

Finally, data from the *Correctional Incident Database, 2009* (CID) are not generalizable to the population from which they were drawn (i.e., escapes from custody), as these data were gathered using an open source search protocol. Using similar techniques for gathering data, Culp (2005) estimated that print media only reported on six percent of the escapes that occurred in 1997, and about nine percent of the escapes that occurred in 1998. Similarly Culp and Bracco (2005) estimated that the print news media reported on less than 16 percent of the escapes in 2001. Using open source data also leads to an overrepresentation of serious and sensational escape incidents, which are more likely to be reported in the news (Peterson, 2014). Yet, it is worth mention that the CID likely included a more representative and inclusive sample than the data used by Culp (2005) and Culp and Bracco (2005). These authors used only news sources for identifying escape incidents, but the CID employed a more thorough method of sourcing escape incidents from correctional press releases and other correctional incident archives. Still, while this dissertation sought to contribute to the body of literature by reporting on findings from

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several sources of data, generalization of these findings to their respective populations is not possible.

The datasets used in the current study were also missing some potentially key variables that could have improved the interpretation of the findings. For example, prior research has found that one of the strongest facility-level predictors of escape is the resource expenditure per inmate (Anson & Hartnett, 1983), but this variable was not available in either the ASJ or the prison census. In addition, neither the NCRP nor the CID had very good indicators of inmates' criminal history, which would have been useful for examining the individual-level correlates of both escape behavior and violence. Rather, these two datasets only systematically included information on the offense for which inmates were in custody. Having more detailed information about inmates' and escapees' criminal histories (i.e., the number and categories of crimes committed in the past) may have produced better estimates of the study's outcomes.

One final limitation was the amount of missing data in these datasets. Each of these datasets had missing data on several key variables. Missing data can compromise the validity of a study because it affects the sample size and potentially biases results (Streiner, 2002). Techniques for dealing with missing data include listwise and pairwise deletion and imputation (Baraldi & Enders, 2010; Streiner, 2002), though the usefulness of each technique depends on the type of data. In the current study, Multiple Imputation by Chained Equations (MICE) methods were chosen for imputing the missing data in each dataset. MICE is widely regarded as one of the most rigorous methods for dealing with missing data as it generates approximately unbiased estimates of standard errors and can be used with almost any type of data or analytic technique (Acock, 2005; Allison, 2000). Nevertheless, MICE methods still have their limitations. One such limitation is that MICE

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is atheoretical and its justification is rooted in empirical arguments rather than theoretical ones (White et al., 2011).

Contributions to the Field:

Despite these limitations, this dissertation made meaningful contributions to the existing body of work on escapes from custody. These contributions include:

(1) Most previous studies have examined either prison-level (e.g., Anson & Hartnett, 1983; Archambeault & Deis, 1998; Culp, 2001; Jan, 1980) or individual-level (e.g., Culp, 2005; Chard-Wierschem, 1995; Delisi et al., 2011; Johnson & Motiuk, 1992; Sandhu, 1996; Sturrock et al., 1991; Walters & Crawford, 2013) characteristics of escapes. The current study examined facility-, incident, and individual-level predictors of escapes and violent escape outcomes.

(2) Most studies have been very limited in their scope. For example, data from previous studies has included primarily escapes that occurred inside secure prisons (e.g., Anson & Hartnett, 1983; Culp, 2005; Lyons, 2011; Sandhu, 1996; Useem & Piehl, 2006; Virginia Department of Corrections, 1978; 1980, 1982; Walters & Crawford, 2013) ignoring escapes from jails, walkaways from minimum security community-based facilities, AWOLS, escapes during transport, escapes from offsite medical facilities, etc. The current study examined a much broader range of escapes across the entire United States, which resulted in findings that were applicable to a wider array of inmates, facilities, and escape incidents. In particular, this was the most comprehensive study on escapes from jails.

(3) Existing research is very outdated, making it difficult to understand the context in which escapes and violent escape outcomes occur today. With the exception of the prison census (2005), all data used in this study came from 2009 or a more recent

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year. Thus, the findings presented here were more applicable to the current correctional context than previous research.

(4) The methodologies employed in the previous studies were limited. Most relied on descriptive analyses (e.g., Archambeault & Deis, 1998; California Department of Corrections and Rehabilitation, 2011; Carlson, 1990; Culp & Bracco, 2005; Florida Department of Corrections, 2011; Lyons, 2011; U.S. Sentencing Commission, 2008), while the few that used inferential statistics have relied on bivariate analyses (e.g., Culp, 2005; Jan, 1980; Sandhu, 1996). This dissertation employed several different multivariate regression techniques and successfully built models that improved the ability to predict escapes and violent escape outcomes.

(5) Similarly, the used of more rigorous analytic techniques in the current research helped elucidate and clarify some of the findings in the extant literature. Notably, Culp's (2005) seminal study on correlates of escape indicated that gender was not associated with escape behavior. However, in the current analysis, it was found that once other variables were held constant in the multivariate model, males were significantly more likely to have been escapees than females. Other findings that have been well-established in prior descriptive and bivariate analyses were further supported by the more rigorous analyses presented here, such as the relationship between the security level of a facility and the number of escapes.

(6) The available body of knowledge is limited when it comes to the amount of violence that stems from escapes from correctional custody. There have been few studies on the amount and scope of violent escape outcomes (e.g., Culp, 2005; Culp & Bracco, 2005; Lillis, 1993; U.S. Sentencing Commission, 2008), but this research has been methodologically limited. The current study examined how inmate, incident-, and facility-level factors were associated with violent escape outcomes, and examined

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violence across three distinct stages of the escape incident: during the breakout, in the community, and during recapture. As such, this research provided one of the most comprehensive and rigorous studies of escape violence.

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Appendix A: MICE Conditional Imputation Models

This appendix presents the Multiple Imputation by Chained Equations (MICE) conditional imputation models for the variables used in chapters four, five, six, and seven. Like a standard regression model, each imputation model is specified according to the distribution of the outcome variable (i.e., the variable being imputed). Thus, outcomes can be linear ("regress" below), counts ("nbreg" and "poisson" below), or categorical with two ("logit" below) or more ("mlogit" below) categories. One specification unique to MICE is predictive mean matching ("pmm" below) which imputes missing values only from the observed values of that variable. Pmm is appropriate to use when a variable is continuous but not normally distributed and when one wants imputed values to fall within the same range as observed values (e.g., with censored or skewed data). In addition, the "augment" option in an imputation model specifies that augmented regression be performed when the model has perfect prediction with a categorical outcome variable. Augmented regression involves the addition of a few observations with small weights to the data while the model is estimated to circumvent perfect prediction.

Conditional models for Chapter Four[32]

ESCAPE_r: nbreg ESCAPE_r ADP_r per_mal l_rated perc_cap per_white ethn_het per_black per_juv per_turn per_hisp I2S_corr11 per_othau I2S_oth11 per_unconv per_ncit per_short PrivateFAC County_un i.region ESCAPE_r

l_rated: pmm l_rated per_mal ADP_r perc_cap per_white ethn_het per_black per_juv per_turn per_hisp I2S_corr11 per_othau I2S_oth11 per_unconv per_ncit per_short PrivateFAC County_un i.region ESCAPE_r

[32] ESCAPE_r = *Number of Escapes and Attempted Escapes;* l_rated = *Rated Capacity (logged)*; per_mal = *Percent Male*; ADP_r = *Average Daily Population*; perc_cap = *Percent Capacity*; per_white = *Percent White*; ethn_het = *Ethnic Heterogeneity*; per_black = *Percent Black*; per_juv = *Percent Juvenile*; per_turn = *Percent Turnover*; per_hisp = *Percent Hispanic*; I2S_corr11 = *Inmate-Correctional Staff Ratio*; per_othau = *Percent from Other Authorities*; I2S_oth11 = *Inmate-Other Staff Ratio*; per_unconv = *Percent Unconvicted*; per_ncit = *Percent Non-Citizens*; per_short = *Percent Short Stay*; PrivateFAC = *Privately Operated*; County_un = *County Unemployment*; region = *Region*

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ADP_r: nbreg ADP_r per_mal l_rated perc_cap per_white ethn_het per_black per_juv per_turn per_hisp I2S_corr11 per_othau I2S_oth11 per_unconv per_ncit per_short PrivateFAC County_un i.region ESCAPE_r

perc_cap: pmm perc_cap per_mal l_rated ADP_r per_white ethn_het per_black per_juv per_turn per_hisp I2S_corr11 per_othau I2S_oth11 per_unconv per_ncit per_short PrivateFAC County_un i.region ESCAPE_r

ethn_het: pmm ethn_het per_mal l_rated ADP_r perc_cap per_white per_black per_juv per_turn per_hisp I2S_corr11 per_othau I2S_oth11 per_unconv per_ncit per_short PrivateFAC County_un i.region ESCAPE_r

per_juv: pmm per_juv per_mal l_rated ADP_r perc_cap per_white ethn_het per_black per_turn per_hisp I2S_corr11 per_othau I2S_oth11 per_unconv per_ncit per_short PrivateFAC County_un i.region ESCAPE_r

per_turn: pmm per_turn per_mal l_rated ADP_r perc_cap per_white ethn_het per_black per_juv per_hisp I2S_corr11 per_othau I2S_oth11 per_unconv per_ncit per_short PrivateFAC County_un i.region ESCAPE_r

per_hisp: pmm per_hisp per_mal l_rated ADP_r perc_cap per_white ethn_het per_black per_juv per_turn I2S_corr11 per_othau I2S_oth11 per_unconv per_ncit per_short PrivateFAC County_un i.region ESCAPE_r

I2S_corr11: pmm I2S_corr11 per_mal l_rated ADP_r perc_cap per_white ethn_het per_black per_juv per_turn per_hisp per_othau I2S_oth11 per_unconv per_ncit per_short PrivateFAC County_un i.region ESCAPE_r

per_othau: pmm per_othau per_mal l_rated ADP_r perc_cap per_white ethn_het per_black per_juv per_turn per_hisp I2S_corr11 I2S_oth11 per_unconv per_ncit per_short PrivateFAC County_un i.region ESCAPE_r

I2S_oth11: pmm I2S_oth11 per_mal l_rated ADP_r perc_cap per_white ethn_het per_black per_juv per_turn per_hisp I2S_corr11 per_othau per_unconv per_ncit per_short PrivateFAC County_un i.region ESCAPE_r

per_unconv: pmm per_unconv per_mal l_rated ADP_r perc_cap per_white ethn_het per_black per_juv per_turn per_hisp I2S_corr11 per_othau I2S_oth11 per_ncit per_short PrivateFAC County_un i.region ESCAPE_r

per_ncit: pmm per_ncit per_mal l_rated ADP_r perc_cap per_white ethn_het per_black per_juv per_turn per_hisp I2S_corr11 per_othau I2S_oth11 per_unconv per_short PrivateFAC County_un i.region ESCAPE_r

per_short: pmm per_short per_mal l_rated ADP_r perc_cap per_white ethn_het per_black per_juv per_turn per_hisp I2S_corr11 per_othau I2S_oth11 per_unconv per_ncit PrivateFAC County_un i.region ESCAPE_r

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Conditional models for Chapter Five[33]

escapes: pmm escapes adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave walkaways

walkaways: pmm walkaways adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes

adp: pmm adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

per_mal: pmm per_mal adp i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

court_order: logit court_order adp per_mal l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways escapes walkaways, augment

l_rated: pmm l_rated adp per_mal i.court_order per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short

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[33] escapes = *Number of Escapes*; walkaways = *Number of Walkaways* adp = *Average Daily Population;* per_mal = *Percent Male;* court_order = *Court Order;* l_rated = *Rated Capacity (logged);* per_cap = *Percent Capacity*; i2s_corr = *Inmate-Correctional Staff Ratio;* i2s_trt = *Inmate-Treatment Staff Ratio;* i2s_trt_f = *Inmate-Female Treatment Staff Ratio*; i2s_trt_m = *Inmate-Male Treatment Staff Ratio;* i2s_corr_m = *Inmate-Male Correctional Staff Ratio*; i2s_corr_f = *Inmate-Female Correctional Staff Ratio;* in_f_corr = *Inmate-Female Correctional Staff Ratio*Percent Male;* in_f_trt *Inmate-Female Treatment Staff Ratio*Percent Male;* per_ncit = *Percent Non-Citizens*; per_whi = *Percent White*; per_bl = *Percent Black;* ethn_het = *Ethnic Heterogeneity*; per_wrel = *Percent on Work Release*; fac_age = *Age of the Facility*; d_othauth = *Inmates from other Authorities*; per_hisp = *Percent* Hipanic; per_work = *Percent on Work Assignment*; per_short = *Percent Short Sentence*; per_unsen = *Percent Unsentenced;* region = *Region;* ed_prog = *Number of Educational Programs;* coun_prog = *Number of Counseling Programs;* operator = *Operator;* gender = *Gender Authorization;* sec_level = *Security Level*; t_alc_drug = *Alcohol or Drug Treatment*; t_men_hel = *Mental Health Treatment*; youth_off = *Primarily Youthful Offenders*; perm_leave = *Permitted to Leave;* sec_per = *Secure Perimeter;* per_dth = *Percent Sentenced to Death*

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per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

per_cap: pmm per_cap adp per_mal i.court_order l_rated i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

sec_per: logit sec_per adp per_mal i.court_order l_rated per_cap per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways, augment

per_dth: pmm per_dth adp per_mal i.court_order l_rated per_cap i.sec_per i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

i2s_corr_m: pmm i2s_corr_m adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

i2s_corr_f: pmm i2s_corr_f adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

in_f_corr: pmm in_f_corr adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

per_ncit: pmm per_ncit adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

per_whi: regress per_whi adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short

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per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

i2s_corr: pmm i2s_corr adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

per_bl: regress per_bl adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

ethn_het: pmm ethn_het adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

per_wrel: pmm per_wrel adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

fac_age: pmm fac_age adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

d_othauth: logit d_othauth adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways, augment

per_hisp: pmm per_hisp adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

i2s_trt_f: pmm i2s_trt_f adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp in_f_trt i2s_trt_m per_work i2s_trt per_short

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per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

in_f_trt: pmm in_f_trt adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f i2s_trt_m per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

i2s_trt_m: pmm i2s_trt_m adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt per_work i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

per_work: pmm per_work adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m i2s_trt per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

i2s_trt: pmm i2s_trt adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work per_short per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

per_short: pmm per_short adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_unsen region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

per_unsen: pmm per_unsen adp per_mal i.court_order l_rated per_cap i.sec_per per_dth i2s_corr_m i2s_corr_f in_f_corr per_ncit per_whi i2s_corr per_bl ethn_het per_wrel fac_age i.d_othauth per_hisp i2s_trt_f in_f_trt i2s_trt_m per_work i2s_trt per_short region ed_prog coun_prog i.operator i.gender i.sec_level t_alc_drug t_men_hel youth_off perm_leave escapes walkaways

Conditional models for Chapter Six[34]

[34] rel_typ = *Type of Release;* sex = *Sex;* race = *Race;* age = *Age;* l_pr_pr = *Prior Prison Time (logged;* l_pr_jl = *Prior Jail Time (logged)*; pr_inc = *Prior Incarceration*; offense1 = *First Offense;* off_long = *Current Offense*; l_senlen = *Sentence Length (logged);* l_per_srv = *Percent of Sentence Served (logged);* comm_rl = *Community Release Prior;* sen_cnt = *Counts of Current Sentence*; educ = *Education*; fac_typ = *Facility Released from*; pr_esc = *Prior Escape*; season = *Season;* yr_flg, al, ar, cal, ia, md, mic, mo, ne, ny, nc, nd, pa, ri, sd, tn, tx, and wv = controls for the year of the escape/release and the states from which the escapes/releases occurred.

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age: regress age i.off_long i.pr_esc i.offense1 i.race i.fac_typ l_senlen l_pr_pr l_pr_jl i.pr_inc l_per_srv i.comm_rl sen_cnt i.educ sex season yr_flg al mic mo sd tn i.rel_typ

off_long: mlogit off_long age i.pr_esc i.offense1 i.race i.fac_typ l_senlen l_pr_pr l_pr_jl i.pr_inc l_per_srv i.comm_rl sen_cnt i.educ sex season yr_flg al mic mo sd tn i.rel_typ, augment

pr_esc: logit pr_esc age i.off_long i.offense1 i.race i.fac_typ l_senlen l_pr_pr l_pr_jl i.pr_inc l_per_srv i.comm_rl sen_cnt i.educ sex season yr_flg al mic mo sd tn i.rel_typ, augment

offense1: mlogit offense1 age i.off_long i.pr_esc i.race i.fac_typ l_senlen l_pr_pr l_pr_jl i.pr_inc l_per_srv i.comm_rl sen_cnt i.educ sex season yr_flg al mic mo sd tn i.rel_typ, augment

race: logit race age i.off_long i.pr_esc i.offense1 i.fac_typ l_senlen l_pr_pr l_pr_jl i.pr_inc l_per_srv i.comm_rl sen_cnt i.educ sex season yr_flg al mic mo sd tn i.rel_typ, augment

fac_typ: mlogit fac_typ age i.off_long i.pr_esc i.offense1 i.race l_senlen l_pr_pr l_pr_jl i.pr_inc l_per_srv i.comm_rl sen_cnt i.educ sex season yr_flg i.rel_typ, augment

l_senlen: regress l_senlen age i.off_long i.pr_esc i.offense1 i.race i.fac_typ l_pr_pr l_pr_jl i.pr_inc l_per_srv i.comm_rl sen_cnt i.educ sex season yr_flg al mic mo sd tn i.rel_typ

l_pr_pr: pmm l_pr_pr age i.off_long i.pr_esc i.offense1 i.race i.fac_typ l_senlen l_pr_jl i.pr_inc l_per_srv i.comm_rl sen_cnt i.educ sex season yr_flg al mic mo sd tn i.rel_typ

l_pr_jl: pmm l_pr_jl age i.off_long i.pr_esc i.offense1 i.race i.fac_typ l_senlen l_pr_pr i.pr_inc l_per_srv i.comm_rl sen_cnt i.educ sex season yr_flg al mic mo sd tn i.rel_typ

pr_inc: logit pr_inc age i.off_long i.pr_esc i.offense1 i.race i.fac_typ l_senlen l_pr_pr l_pr_jl l_per_srv i.comm_rl sen_cnt i.educ sex season yr_flg al mic mo sd tn i.rel_typ, augment

l_per_srv: regress l_per_srv age i.off_long i.pr_esc i.offense1 i.race i.fac_typ l_senlen l_pr_pr l_pr_jl i.pr_inc i.comm_rl sen_cnt i.educ sex season yr_flg al mic mo sd tn i.rel_typ

comm_rl: logit comm_rl age i.off_long i.pr_esc i.offense1 i.race i.fac_typ l_senlen l_pr_pr l_pr_jl i.pr_inc l_per_srv sen_cnt i.educ sex season yr_flg al mic mo sd tn i.rel_typ, augment

sen_cnt: poisson sen_cnt age i.off_long i.pr_esc i.offense1 i.race i.fac_typ l_senlen l_pr_pr l_pr_jl i.pr_inc l_per_srv i.comm_rl i.educ sex season yr_flg al mic mo sd tn i.rel_typ

educ: logit educ age i.off_long i.pr_esc i.offense1 i.race i.fac_typ l_senlen l_pr_pr l_pr_jl i.pr_inc l_per_srv i.comm_rl sen_cnt sex season yr_flg al mic mo sd tn i.rel_typ, augment

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Conditional models for Chapter Seven[35]

vio_rec: logit vio_rec i.accred S_Age i.fac_sec i.assistance l_rated i.v_rec i.offense i.vio_comm i.loc_out fac_age i.race2 time_hour adp p_cap i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap fac_adm, augment

vio_comm: logit vio_comm i.male i.weekend i.accred S_Age i.fac_sec i.assistance i.secure i.vio_brk i.gen_dem l_rated i.v_rec i.offense i.loc_out fac_age i.age_dem i.race2 time_hour adp i.esc_hist p_cap i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap fac_adm, augment

vio_brk: logit vio_brk i.male i.weekend i.fac_priv i.accred S_Age i.assistance i.gen_dem l_rated i.v_rec i.offense i.loc_out fac_age i.starttime i.race2 time_hour adp i.esc_hist p_cap i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap i.season fac_adm, augment

vio_ovr: logit vio_ovr i.male i.weekend i.fac_priv i.accred S_Age i.fac_sec i.assistance i.secure i.gen_dem l_rated i.v_rec i.offense i.loc_out fac_age i.starttime i.age_dem i.race2 time_hour adp i.esc_hist p_cap i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap i.season fac_adm, augment

male: logit male S_Age i.fac_sec i.assistance i.secure l_rated i.v_rec i.offense i.loc_out i.race2 time_hour adp i.esc_hist p_cap i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap i.region fac_adm i.vio_ovr, augment

weekend: logit weekend i.fac_priv i.accred S_Age i.fac_sec i.assistance i.secure l_rated i.offense i.loc_out fac_age i.starttime i.race2 time_hour adp i.esc_hist p_cap i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap i.region i.vio_brk i.vio_comm i.vio_rec i.vio_ovr, augment

fac_priv: logit fac_priv i.male i.weekend i.accred S_Age i.fac_sec i.secure i.offense i.loc_out fac_age i.race2 adp p_cap i2s l_sentence plan catalyst num_inm num_esc recap i.season fac_adm i.vio_brk i.vio_comm i.vio_rec i.vio_ovr, augment

accred: logit accred i.fac_priv i.fac_sec i.assistance i.secure l_rated i.loc_out fac_age i.starttime i.race2 time_hour adp p_cap i2s plan catalyst num_inm num_esc recap i.region i.season fac_adm i.vio_brk i.vio_comm i.vio_rec i.vio_ovr, augment

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[35] vio_brk = *Violence During the Breakout*; vio_comm = *Violence in the Community*; vio_rec = *Violence During Recapture*; vio_ovr = *Overall Violence*; race = *Race* race2 = *Race (alternative operationalization)*; male = *Gender;* S_Age = *Age*; v_rec = *Committing Offense*; offense = *Committing Offense (alternative operationalization);* esc_hist = *Escape History*; l_sentence = *Sentence Length (logged);* l_sen_lef = *Sentence Left (logged)*; assistance = *Assistance;* starttime = *Start Time;* plan = *Plan;* catalyst = *Catalyst Event;* time_hour = *Time Out;* loc_out = *Incident Location*; secure = *Secure Incident*; weekend = *Weekend;* season = *Season;* num_inm = *Number of Escapees*; d_num_inm *Number of Escapees (dummy)* = fac_sec = *Classification*; accred = *Facility Accredited;* l_rated = *Rated Capacity (logged)*; p_cap = *Percent Capacity*; adp = *Average Daily Population*; fac_priv = *Privately Operated*; i2s = *Inmate-Staff Ratio*; fac_age = *Age of the Facility*; region = *Region*; fac_adm = *Facility Administrator*; num_esc = *Number of Escapes*; d_num_esc = *Number of Escapes (dummy);* gen_dem = *Gender Demographics*; age_dem = *Age Demographics.*

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S_Age: regress S_Age i.male i.weekend i.fac_priv i.accred i.fac_sec i.assistance i.secure i.gen_dem l_rated i.v_rec i.offense i.loc_out fac_age i.starttime i.age_dem i.race2 time_hour adp i.esc_hist p_cap i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap i.region i.season fac_adm i.vio_brk i.vio_comm i.vio_rec i.vio_ovr

fac_sec: mlogit fac_sec i.male i.fac_priv S_Age i.secure i.gen_dem l_rated i.offense i.loc_out fac_age i.age_dem p_cap fac_adm i.vio_brk i.vio_comm i.vio_rec i.vio_ovr, augment

assistance: logit assistance i.male i.weekend i.fac_priv i.accred S_Age i.fac_sec i.secure l_rated i.v_rec i.offense i.loc_out fac_age i.starttime i.race2 time_hour adp i.esc_hist p_cap i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap i.region i.season fac_adm i.vio_brk i.vio_comm i.vio_rec i.vio_ovr, augment

secure: logit secure i.male i.weekend i.fac_priv i.accred S_Age i.fac_sec i.assistance l_rated i.v_rec i.offense i.loc_out fac_age i.starttime i.race2 time_hour adp i.esc_hist p_cap i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap i.region i.season i.vio_brk i.vio_comm i.vio_rec i.vio_ovr, augment

gen_dem: logit gen_dem i.male i.fac_priv i.fac_sec l_rated fac_age i.age_dem p_cap i.region fac_adm i.vio_ovr, augment

l_rated: regress l_rated i.male i.weekend i.fac_priv i.accred S_Age i.fac_sec i.assistance i.secure i.gen_dem i.v_rec i.offense i.loc_out fac_age i.starttime i.age_dem i.race2 time_hour adp i.esc_hist p_cap i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap i.region i.season fac_adm i.vio_brk i.vio_comm i.vio_rec i.vio_ovr

v_rec: logit v_rec i.male i.fac_priv S_Age i.fac_sec i.assistance i.secure l_rated i.offense i.loc_out i.race2 time_hour adp i.esc_hist p_cap i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap i.region fac_adm i.vio_comm i.vio_rec, augment

offense: logit offense i.male S_Age i.fac_sec i.assistance i.secure l_rated i.v_rec i.loc_out i.race2 time_hour adp i.esc_hist p_cap i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap i.region i.vio_ovr, augment

loc_out: logit loc_out i.male i.weekend i.fac_priv i.accred S_Age i.fac_sec i.assistance i.secure l_rated i.v_rec i.offense fac_age i.starttime i.race2 time_hour adp i.esc_hist p_cap i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap i.region i.season fac_adm i.vio_brk i.vio_comm i.vio_rec i.vio_ovr, augment

fac_age: pmm fac_age i.male i.weekend i.fac_priv i.accred S_Age i.fac_sec i.assistance i.secure i.gen_dem l_rated i.v_rec i.offense i.loc_out i.starttime i.age_dem i.race2 time_hour adp i.esc_hist p_cap i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap i.region i.season fac_adm i.vio_brk i.vio_comm i.vio_rec i.vio_ovr

starttime: mlogit starttime i.male i.weekend i.fac_priv i.accred S_Age i.fac_sec i.assistance i.secure i.gen_dem l_rated i.offense i.loc_out i.age_dem i.race2 time_hour i.esc_hist i.region fac_adm i.vio_brk i.vio_comm i.vio_rec i.vio_ovr, augment

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age_dem: logit age_dem i.male i.weekend i.fac_priv S_Age i.secure l_rated i.loc_out plan catalyst num_inm num_esc recap i.vio_ovr, augment

race2: logit race2 i.male i.weekend i.fac_priv i.accred S_Age i.fac_sec i.assistance i.secure l_rated i.v_rec i.offense i.loc_out fac_age i.starttime time_hour adp i.esc_hist p_cap i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap i.region i.season fac_adm i.vio_brk i.vio_comm i.vio_rec i.vio_ovr, augment

time_hour: regress time_hour i.male i.weekend i.fac_priv i.accred S_Age i.fac_sec i.assistance i.secure i.gen_dem l_rated i.v_rec i.offense i.loc_out fac_age i.starttime i.age_dem i.race2 adp i.esc_hist p_cap i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap i.region i.season fac_adm i.vio_brk i.vio_comm i.vio_rec i.vio_ovr

adp: pmm adp i.male i.weekend i.fac_priv i.accred S_Age i.fac_sec i.assistance i.secure i.gen_dem l_rated i.v_rec i.offense i.loc_out fac_age i.starttime i.age_dem i.race2 time_hour i.esc_hist p_cap i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap i.region i.season fac_adm i.vio_brk i.vio_comm i.vio_rec i.vio_ovr

esc_hist: logit esc_hist i.male i.weekend i.fac_priv i.accred S_Age i.fac_sec i.assistance i.secure l_rated i.v_rec i.offense i.loc_out fac_age i.starttime i.race2 time_hour adp p_cap i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap i.region i.season i.vio_ovr, augment

p_cap: pmm p_cap i.male i.weekend i.fac_priv i.accred S_Age i.fac_sec i.assistance i.secure i.gen_dem l_rated i.v_rec i.offense i.loc_out fac_age i.starttime i.age_dem i.race2 time_hour adp i.esc_hist i2s l_sentence l_sen_lef plan catalyst num_inm num_esc recap i.region i.season fac_adm i.vio_brk i.vio_comm i.vio_rec i.vio_ovr

i2s: pmm i2s i.male i.weekend i.fac_priv i.accred S_Age i.fac_sec i.assistance i.secure i.gen_dem l_rated i.v_rec i.offense i.loc_out fac_age i.starttime i.age_dem i.race2 time_hour adp i.esc_hist p_cap l_sentence l_sen_lef plan catalyst num_inm num_esc recap i.region i.season fac_adm i.vio_brk i.vio_comm i.vio_rec i.vio_ovr

l_sentence: regress l_sentence i.male i.weekend i.fac_priv i.accred S_Age i.fac_sec i.assistance i.secure i.gen_dem l_rated i.v_rec i.offense i.loc_out fac_age i.starttime i.age_dem i.race2 time_hour adp i.esc_hist p_cap i2s l_sen_lef plan catalyst num_inm num_esc recap i.region i.season fac_adm i.vio_brk i.vio_comm i.vio_rec i.vio_ovr

l_sen_lef: regress l_sen_lef i.male i.weekend i.fac_priv i.accred S_Age i.fac_sec i.assistance i.secure i.gen_dem l_rated i.v_rec i.offense i.loc_out fac_age i.starttime i.age_dem i.race2 time_hour adp i.esc_hist p_cap i2s l_sentence plan catalyst num_inm num_esc recap i.region i.season fac_adm i.vio_brk i.vio_comm i.vio_rec i.vio_ovr

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