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# Examining the Use and Impacts of Restrictive Housing

Joshua C. Cochran, John D. Wooldredge, Claudia N. Anderson,  
and Joshua Long

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# EXAMINING THE USE AND IMPACTS OF RESTRICTIVE HOUSING

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# EXAMINING THE USE AND IMPACTS OF RESTRICTIVE HOUSING

## *Summary Overview*

The purpose of this project was to develop a systematic understanding of the prevalence and use of restrictive housing (RH) in one state’s (Ohio’s) prison system and to then develop an understanding of the impacts of this restrictive housing usage across several domains relevant for corrections agencies, policymakers, and society members.

To do this, our analyses focus on the two main types of restrictive housing that are used in Ohio: within-facility, short-term RH (SRH) placements and extended RH (ERH) placements. SRH placements are almost entirely due to disciplinary reasons—an incarcerated person (IP) is placed in SRH in response to an alleged infraction and/or in response to being found guilty for an infraction.<sup>1</sup> ERH placements are different in that they coincide with an IP’s designation in the Ohio Department of Rehabilitation and Correction’s (ODRC) highest rated security levels and, by extension, placement in one of two specialized facilities that utilize the most serious security measures, routines, and infrastructures available in the prison system. Although terms of “supermax” or “close management” are not formally used by ODRC, the conditions in ERH are comparable to housing in other systems that would be designated with these labels, including the standard use of solitary confinement within these housing units.<sup>2</sup> Thus, most placements in ERH are the result of a change in classification/security level that then results in a subsequent transfer to one of two maximum security facilities in Ohio (to use ODRC’s nomenclature, this includes security levels 4b and 5), although in some rare instances IPs may start their prison sentence in one of these facilities at that security level.

Recent estimates suggest that RH is commonly used in prisons across the U.S. (Beck, 2015; Liman Program & Association of State Correctional Administrators, 2015; Pullen-Blasnick et al., 2021). Specifically, a report published jointly by the Liman Program at the Yale Law School and the Association of State Correctional Administrators, estimates that 80,000 to 100,000 state and federal IPs experience RH in a given year (p. ii). This suggests that the expansion of the prison system from the late 1970s to 2010 has resulted not only in a larger population who have experienced incarceration, but also a growing population of citizens who have experienced time in isolated confinement (see, also, Pullen-Blasnik et al., 2021 for a relevant analysis of population-level racial disparities in experiencing solitary confinement early in the life course).

Limited research exists, however, that systematically examines how prisons use RH or that systematically examines all of the potential impacts—both intended and unintended and both for individuals and prisons—that are relevant for fully enumerating the costs, fiscal and otherwise, and benefits of RH. Studies that do exist typically focus on limited samples and limited outcomes, with a primary emphasis on mental health (e.g., Haney, 1993; Kaba et al., 2014; Walker et al., 2014; Kapoor and Trestman, 2016). These studies consistently identify adverse impacts of RH on the mental well-being of individuals placed there (e.g., Haney, 2003; Smith, 2006; Kapoor and Trestman, 2016; Haney, 2018). That said, recent studies have raised questions about the research methodologies used in prior studies of RH and mental health and suggest that mental health may influence RH placements more so than RH adversely influences mental health

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<sup>1</sup> These routine, short-term RH placements are short relative to extended RH placements, but as we find in our analyses, they can still result in sustained RH stays that can span for multiple months.

<sup>2</sup> By contrast, it is not standard for IPs to be incarcerated in single-person cells in SRH placements.

(O’Keefe et al., 2011, 2013; Morgan et al., 2016; Gendreau and Labrecque, 2018). Questions about mental health and the range of other policy-relevant impacts deserve more robust empirical analyses across larger populations and with a focus on not just the most extreme versions of RH, but the shorter and more routine stays that will impact larger swaths of state and federal prison populations. For example, we know little about how most prison systems use RH and the factors that influence its use, such as whether it is used equitably across racial and ethnic groups and the extent to which it serves as a default response to managing IPs with serious mental health problems rather (Butler and Steiner, 2017; Cochran et al., 2018; Mears et al., 2021a; see, generally, Frost and Monteiro, 2016). Moreover, more research is needed that illuminates RH impacts on behavior (e.g., Morris, 2016), participation in programming, and the overall impacts on prison system safety and order (e.g., Mears and Reisig, 2006; Sundt et al., 2008).

These gaps in the RH knowledge base loom large over debates about RH and attendant policy deliberations. Current conversations are not easily informed by empirical estimates and data. Extant research has yet to assess variation in RH use across prisons or to estimate the range of theory- and policy-relevant consequences that might emerge from its use. Systematic assessments of the prevalence of RH across prisons and systems, the circumstances that lead to its use, and varying impacts of its use are all required to identify gaps in the theory and policy logic that informs how and why prisons use RH and to identify key target areas for reform. Answering these and related questions about RH use within a prison system can provide an evidence-based foundation for any such reforms.

## Specific Goals

The purpose of this study conducted by the University of Cincinnati (UC) was to contribute to efforts to improve the safety, fairness, and effectiveness of prison systems. Specifically, we sought to do the following: (1) provide empirical estimates of prevalence and trends in the use of RH; (2) identify individual and facility characteristics that influence how prison officials use RH; (3) estimate the impacts of RH that are relevant *during* incarceration, including future infractions, mental health status, and in-prison programming; (4) estimate individual-level impacts of RH *after* incarceration, namely recidivism; (5) estimate facility-level impacts of RH on overall prison safety and order; and (6) assess prison officer and staff perceptions of the use and impacts of RH for IPs, staff, and prisons. We conducted empirical analyses to answer items 1 – 5. We were unable to address item 6 due to restrictions imposed by the ODRC on research as a result of Covid-19 starting in 2019. These restrictions prohibited us from distributing a survey and conducting focus groups with prison officers and staff.

## Main Findings

On trends and usage:

- 36.2% of people admitted to prisons will experience at least one placement in SRH.
- 3,292 individuals are placed in SRH per month, which is roughly 6 percent of the prison population.
- SRH usage has declined since 2011.
- About 600 people, over 1% of the prison population at any point in time, is in ERH in OH at any given time.
- About 51 people are transferred to ERH in any given month in Ohio.

On correlates and predictors of RH placements:

- Race and ethnic disparities exist in both SRH and ERH placements. African American IPs are more likely to experience both kinds of placements. Black Latino IPs are more likely to experience ERH.
- Mental illness is a consistent predictor of placement in SRH and is an especially strong predictor of experiencing multiple stints of both SRH and ERH.
- Racial and ethnic disparities in SRH are mediated by racial and ethnic disproportionalities in infraction type. It is unclear from our analyses whether such disproportionalities are the result of differential behavior, differential detection/enforcement, or differential application of RH (or a combination of two or more).
- Facilities with higher capacities and a higher proportion of the population in maximum security were more likely to use SRH as a result of an IP's infraction.

On in-prison impacts:

- Placements in SRH over the course of a prison sentence are associated with subsequent declines in an IP's mental health.
- Generally, SRH is associated with modest reductions in misconduct in the months following release from SRH.
- However, longer time spent in SRH is adverse and consistently linked to *higher* odds of misconduct in the months following an SRH stay.
- SRH placements during rehabilitative programming are strongly associated with higher odds of programming withdrawal/failure, net of any impact of misbehavior or violence during programming. This finding suggests that a collateral harm of SRH as a primary method of in-prison punishment is that it could undermine rehabilitative goals of the prison system for some IPs.

On recidivism impacts:

- Experiencing SRH during incarceration is associated with a 7 percent increase in the likelihood of recidivism.
- Experiencing ERH during incarceration is associated with a 14 percent increase in the likelihood of recidivism.

On ERH/supermax systems-level impacts:

- ERH/supermax placements yield no influence on rates of general misconduct or violence in prison facilities.
- ERH/supermax receipts—that is, when IPs leave ERH and return to general population facilities—lead to modestly increased rates of both general misconduct and violence in prison facilities. Specifically, longitudinal estimates suggest that, on average, for every one person transferred from ERH back to the general population, the receiving prison facilities will experience an increase of roughly 10 infractions and 3 violent incidents in the following three months.

## Implications and recommendations

### Implications for research:

- (\*) Longitudinal, descriptive analyses of prison systems' use of RH are needed.*
- (\*) Theoretically-informed research is needed to explain systems-level trends in RH practices.*
- (\*) There is a need to identify and focus on the places within prison systems with the most prevalent and potentially problematic patterns of RH usage.*
- (\*) Studies need to closely examine how male facilities differ from female facilities in RH usage and impacts.*
- (\*) Research should focus as much attention (or more?) on shorter and more routine usages of restrictive housing as it does on supermax incarceration and long term solitary confinement, despite the fact that those shorter, within-facility stays do not necessarily include solitary or single-cell confinement.*
- (\*) Future studies of disciplinary segregation and short-term versions of RH that are used in part to improve behavior need to focus on understanding the mechanisms that lead to beneficial impacts on behavior in some instances and null and adverse consequences in others.*
- (\*) Analyses of RH practices should consider RH usage as a "behavior" of prison systems and, in doing so, conduct theoretically informed analyses of the forces that shape this behavior.*
- (\*) Research should explore potential disparities in decision making that precedes and potentially influences decisions to place IPs in RH.*
- (\*) Studies are needed that examine a broader range of rehabilitative services provided in prison and the ways in which RH practices might impede such programming.*
- (\*) There is a critical need in the literature to theorize and measure mechanisms that link RH placements to in-prison and post-release outcomes, especially as it relates to potential violence-increasing effects of ERH usage and also as it relates to recidivism.*

### Implications for policy:

- (\*) Establish clear linkages between practices used to manage prison safety and order and the causes of safety and order problems within a prison facility.*
- (\*) Prison systems and states should weigh more heavily the potential long term costs to prison safety and order of using RH against any modest, short term improvements to individuals' behavior.*
- (\*) Future policy decisions and reforms surrounding RH practices need to also consider the harms and hindrances RH can pose to the rehabilitative goals of the corrections system.*

*(\*) Prison facilities should closely monitor potentially problematic points of discretion in the day-to-day operations to manage prison safety and order.*

*(\*) Prison systems need to systematically evaluate alternative responses to people with mental illness that fail to comply with prison rules. At the same time, policymakers and court actors should reevaluate sentencing practices that lead to prison systems becoming primarily warehouses for people with serious and often unaddressed mental illness.*

*(\*) Prison systems should reevaluate the role and utility of ERH.*

## 1. Introduction

The expansion of the prison system over the past fifty years has led to a resurgence of research and policy attention paid to understanding what happens inside of prisons and effective strategies for attaining key correctional goals (e.g., Petersilia, 2003; Garland et al., 2011; Mears and Cochran, 2015). As prison systems expanded and, in many states, became overcrowded, attention to institutional corrections re-emerged focused on strategies prison systems employ to maintain order (e.g., Wooldredge et al., 2001; Camp et al., 2003; Wooldredge, 2003; Steiner and Wooldredge, 2009), with a particular focus on prisons' use of RH (e.g., Cloyes et al., 2006; Browne et al., 2011; Morris, 2016). Studies of RH, which most typically focus on mental health, consistently highlight deleterious impacts of isolated confinement (e.g., Grassian, 1983; Haney, 2003) and highlight overall skepticism of its potential to provide benefits to the broader prison system (King, 1999; Briggs et al., 2003; Mears, 2008, 2010).

Generically, RH is controversial. Best, albeit limited, estimates suggest that RH, in a variety of forms, is used widely across prison systems (Beck, 2015; Liman Program & Association of State Correctional Administrators, 2015; Pullen-Blasnick et al., 2021). Studies of the opinions and perceptions of staff and personnel suggest that prisons rely heavily on different forms of RH to respond to acute problems within a facility or population and because of anticipated benefits to day-to-day operations and overall prison system safety and order (Shalev, 2009; Mears et al., 2021b). Yet, empirical evidence to date raises questions about the actual effectiveness of RH for regulating and improving prison order (e.g., Mears and Bales, 2009; Morris, 2016; Labrecque and Smith, 2019; Lucas and Jones, 2019) and the potential tradeoffs, including potential collateral harms that might include defiance, brutalization, and criminalizing effects (e.g., Rhodes, 2004; Day et al., 2015; Luigi et al., 2020), undermining rehabilitative efforts of prison systems, contributing further to racial inequities in punishment, and undermining procedural legitimacy (Mears et al., 2021c; see, generally, Bottoms, 1999; Crewe, 2011). Recent calls for the abolition of RH exist due to potential unconstitutionality and inhumaneness of the conditions of RH and, specifically, solitary confinement (e.g., Human Rights Watch, 2000; Collins, 2004; Metzner and Fellner, 2010; Amnesty International, 2012; Katel, 2012; American Civil Liberties Union, 2014; Obama, 2016) as well as linkages of solitary confinement experiences to a host of adverse life course outcomes (see, e.g., Cloud et al., 2015; Brinkley-Rubinstein et al., 2019). Despite these calls, and despite increasing attention to RH in policy debates, answers to basic questions remain largely unknown.

### 1.1 Evidence on the use of restrictive housing

One widely cited estimate based on surveys of multiple state corrections agencies found that 80,000 to 100,000 federal and state prisoners experience RH in any given year in the U.S. (Liman Program & Association of State Correctional Administrators, 2015). Separately, researchers have found that about 6 percent of IPs report some kind of RH experience (Beck, 2015; Pyrooz and Mitchell, 2020). These estimates would likely increase dramatically if similar estimates existed for local jails (e.g., Montagnet et al., 2021).

However, these estimates are limited because they represent one-time snapshots of RH prevalence. We know almost nothing about how these estimates vary across states and systems and over time. In fact, to our knowledge, only two published studies exist—one by Sakoda and Simes (2012) and another by Lovell et al. (2020)—that estimate prevalence and trends in RH usage across specific prison systems (Kansas and Washington, respectively).

This limited knowledge base suggests that despite increasing calls for prisons to reform RH policies, it is unclear how and how much prisons actually use RH (see also, Naday et al., 2008). This lack of empirical data on and description of RH practices in the U.S. undermines policy deliberations. For example, we cannot easily determine the scale of problems and collateral consequences identified in RH impact evaluations without knowing the prevalence of RH practices and or the routineness of RH placements. That is to say that any problems and tradeoffs that might result from RH use require realistic estimates of the magnitude of those problems. Measuring that magnitude requires an understanding of RH prevalence and usage trends across a given prison system and over time.

Understanding how prisons use RH requires both macrolevel and microlevel analyses. The discussion above focuses primarily on the need to understand how systems use different types of RH at an aggregate level. It is similarly important to develop an understanding of individual and facility level correlates of RH placements (see, e.g., Motiuk and Blanchette, 2001; O’Keefe, 2008). What types of IPs are more likely to be placed in RH? What types of facility characteristics make RH placements more or less likely? These questions are particularly important in the context of shorter term, disciplinary segregation placements because they are far more common than extended and supermax-like placements and the decision-making processes that lead to SRH stays are arguably analogous to court sentencing processes, which is a context in which considerable disparities and inconsistencies emerge (Butler and Steiner, 2017; Logan et al., 2017; Cochran et al., 2018; see further discussion about SRH versus ERH below). Studying these placement decisions can provide insights into the microlevel processes that inform prison decisions to place IPs in SRH and reveal any disparities in the use of SRH, such as potential racial, ethnic, gender, and age differences in SRH placement likelihoods. These insights are critical for understanding whether any potential collateral harms of RH practices are unequally distributed across the prison population, among other possibilities.

The literature on individual and facility correlates of RH placements is arguably more developed than that focused on systems-level trends. Several empirical studies have emerged in the past five years. These studies are split in whether they focus on longer term, supermax placements in RH (e.g., Mears et al., 2021b; see also Lanes, 2011) and shorter term, disciplinary segregation placements (e.g., Butler and Steiner, 2017; Logan et al., 2017; Clark, 2018; Cochran et al., 2018; see also Labrecque, 2015).

In general, these studies suggest that although violent infractions are more likely to result in disciplinary segregation stays, *most* infractions, including non-violent ones, result in some type of RH stay and this is consistent across the state prison systems studied in the papers noted above. Beyond the infraction type, some researchers have found that demographic and personal characteristics are correlated with punitive RH placements, including race and ethnicity (e.g., Logan et al., 2017; Cochran et al., 2018; Mears et al., 2021b) and mental health status (e.g., Lovell and Jemelka, 1996; O’Keefe, 2007; Stewart and Wilton, 2014; Houser and Belenko, 2015; Clark, 2018; Mears et al., 2021b). Fewer systematic quantitative analyses of supermax and long-term RH placements exist, but those that do exist suggest something similar—violence, but also race and mental health are strong correlates of placement in extended stays in supermax and supermax-like housing (Mears et al., 2021b).

## 1.2 Evidence on the impacts of restrictive housing

The literature on impacts of RH is arguably more robust than that focused on its prevalence. Even still, we have only a limited understanding of the range of consequences that stem from RH

placements (Mears, 2008; Frost and Monteiro, 2016; Morris, 2016) and how these consequences vary for SRH compared to ERH and their equivalents across jurisdictions. In general, the “impacts literature” identifies adverse effects. RH is linked to harms to IP’s mental health (see, generally, Haney, 2003; Arrigo and Bullock, 2008) via increases in depression, self-harm, and other problems (e.g., Toch, 1975; Porporino, 1986; Bauer et al., 1993; Haney, 1993; Andersen et al., 2000; Lanes, 2009; Kaba et al., 2014). That said, some more recent analyses and reviews suggests that RH stays may exert no impact on mental health (e.g., Morgan et al., 2016; Chadick et al., 2018; Walters, 2018). These studies are valuable, but more are needed that examine larger samples and estimate effects across different facilities and contexts.

Studies that examine outcomes other than mental health—and, arguably, more closely evaluate the policy logic of RH usage—are even more limited. For example, only a small handful of studies exist that examine how RH impacts individuals’ behavior. This is especially anomalous considering that a primary goal of RH is to improve behavior via deterrence (e.g., Briggs et al., 2003; Mears and Reisig, 2006; Medrano et al., 2017). Morris (2016) found that short terms spent in RH exerted no measurable impact on future in-prison violence. Labrecque (2015) examined how IPs who stayed in long term RH (at least one year) behaved afterwards and found no significant increase or decrease in the likelihood of misconduct. Several studies published in the last 5 years (i.e., since the start of our project) suggest something similar (Medrano et al., 2017; Labrecque and Smith, 2019; Salerno and Zgoba, 2019; Woo et al., 2020; Mears et al., 2021a). That is, that RH does not seem to achieve the policy benefits that are often implied in the logic of its use.

There are almost no studies that look beyond these two primary outcomes to assess potentially unintended consequences that reach other aspects of incarcerated life. Prior studies, for example, have not assessed RH consequences for rehabilitative programming. Logically, prisons are selecting on higher risk/higher needs populations when making RH placement decisions, which would be those in the prison population most likely to benefit from programming. Yet, it also seems likely that RH will make accessing and completing programming—especially curriculum- and progression-based programs—impractical. Assessing the relationship between RH and program completion/disruption should be insightful for evaluating the extent to which RH imposes this implicit tradeoff between addressing acute safety concerns, but undermining longer term rehabilitative goals (see, generally, Shalev, 2009).

A surprisingly small number of studies exist that have examined how time spent in RH impacts post-prison behavior and recidivism. This body of RH studies focuses primarily on long-term administrative and supermax RH placements and generally finds that RH stays either increase recidivism or have no impacts (Ward and Werlich, 2003; Lovell and Johnson, 2004; Lovell et al., 2007; Mears and Bales, 2009; Pizarro et al., 2014; Clark and Duwe, 2019; Zgoba et al., 2020).

Not least, the state of research focused on macrolevel or systems-level impacts—that is, how RH usage impacts prison facilities and/or the larger prison system—is even more limited. This focus is important primarily as it relates to understanding what ERH and any other supermax-like housing does to improve systemwide safety and order. The importance of this focus stems from the value that is often tied to the construction and usage of supermax housing for the “worst of the worst” within a prison facility, that is the potential promise of supermax incarceration for making prison systems safer at an aggregate level. Our review of prior studies focused on macro- or prison-level outcomes revealed only two papers (see, however, an exploratory analysis by Crouch and Marquart, 1989). Briggs et al. (2003) observed assaults across three sites and

analyzed whether the introduction of a supermax facility into a prison system affected overall rates of violence in a prison. Their analysis found no evidence that use of this form of RH reduced rates of violence. A follow-up study by Sundt et al. (2008) utilized a similar approach to test the impact of supermax construction in Illinois and identified no impact on IP-on-IP assaults, but did identify an “abrupt” reduction in IP assaults on staff.

Thus, there has been limited research attention paid to macrolevel impacts of ERH, despite the fact that one of the primary goals used to justify its substantial costs and controversy is its centrality in ensuring safe and orderly systems (Riveland, 1999; Briggs et al., 2003; Mears and Reisig, 2006). It is largely unknown as to whether and to what extent supermax serves this goal. Following DiIulio (1987), a greater use of administrative controls may indeed help to reduce misconduct and promote order in prison. By contrast, Colvin (1992) suggests that strict reliance on coercive controls (such as RH) might be ineffective if they feed IPs cynicism towards authority. Research is needed that can decipher whether either of these or other consequences result from system use of supermax incarceration.<sup>3</sup>

### 1.3 Study goals and research questions

In short, there is a pressing need for rigorous assessments of how RH is used and how RH impacts individuals and prison systems. We seek to address these general knowledge gaps, and the specific ones identified above, by studying RH usage and impacts in the Ohio prison system. Specifically, our project worked to answer the following research questions:

- (1) How prevalent is the use of RH in state prisons in Ohio, how does its prevalence vary across facilities, and what are the trends in its use over time?
- (2) What factors predict an IPs’ placement in RH? Here, we take a particular focus on placement in RH that results from an in-prison infraction (i.e., “disciplinary” segregation) given that this is the most routine version of RH that IPs can experience.
- (3) What are the impacts of placement in RH on IPs *during* incarceration? These analyses will include a focus on future misconduct, mental health, programming, and visitation.
- (4) What are the impacts of RH on IPs *after* incarceration? Specifically, does placement in RH affect the likelihood of recidivism.
- (5) What are the impacts of ERH on prison facility safety? This question focuses on ERH in Ohio, which is analogous to supermax or close confinement usage in other states, and how facility utilization of a prison systems’ supermax facility might link to changes in overall rates of misconduct and violence in that facility over time.

### 1.4 Defining and measuring “restrictive housing” in Ohio

This project focused on both short and long-term versions of RH. Solitary confinement and long-term versions of RH are typically central to discussions and policy deliberations. This centrality makes sense because of the potentially strong deleterious impacts of long term exposure to single cell confinement with no congregate activities and essentially no human socialization. However, this experience is substantially less common than shorter term uses of RH that often do not involve solitary confinement (for further discussion, see Mears et al. 2019; 2021b). In addition, short-term, non-solitary RH stays appear quite similar to these extended RH placements, except of course for duration, the number of cellmates, and terminology (Rubin and

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<sup>3</sup> Questions about systems-level impacts are less relevant for more routine short-term versions of RH such as disciplinary segregation and so we do not develop analyses that consider the association between SRH and macrolevel outcomes.

Reiter, 2018). Thus, we focus on both types of RH in our analyses in recognition of the fact that both are used with the intention of improving prison management yet both are understudied and may yield a range of unintended consequences.

ODRC essentially uses two forms of RH: within-facility, short-term RH (SRH) placements and extended RH (ERH) placements. SRH placements are almost entirely due to disciplinary reasons—an incarcerated person (IP) is placed in SRH in response to an alleged infraction and/or in response to being found guilty for an infraction. ERH placements are different in that they coincide with an IP’s designation in the Ohio Department of Rehabilitation and Correction’s (ODRC) highest rated security levels and, by extension, placement in one of two specialized facilities that utilize the most serious security measures, routines, and infrastructures available in the prison system. Although terms of “supermax” or “close management” are not formally used by ODRC, the conditions in ERH are comparable to housing in other systems that would be designated with these labels, including the standard use of solitary confinement. Thus, most placements in ERH are the result of a change in classification/security level that then results in a subsequent transfer to one of two maximum security (to use ODRC’s nomenclature, this includes security levels 4b and 5) facilities in Ohio, although in more rare instances IPs may start their prison sentence in one of these facilities at that security level.

## 2. General Data Description

There are several data files relevant to reproducing all of the statistics in this report. These files differ based on units of analysis (individuals, facilities, programs (x) individuals, time periods) and the samples examined (at both the individual and facility levels). Individuals across these data files include 224,288 IPs admitted to Ohio prisons during the 10-year study window. Facilities across these data files include all 33 public and private state prisons in Ohio in operation at any point during the study window. Regarding the file with programs (x) individuals as units (“person-program” file hereafter), the unit of analysis is an IP who participated in a specific program. There are several of these programs across the state, so some IPs appear more than once in the data set if they participated in two or more programs during the window. The complete set of data files submitted to ICPSR at the end of December 2021 are either SPSS or Stata system files. We provided SPSS files that will reproduce findings from analyses conducted with SPSS, HLM, and *Mplus* because of the Institute’s preference for SPSS files over Stata files. However, Stata files are provided that will reproduce findings from Propensity Score Matching (PSM) and trends analyses because Stata has certain advantages over SPSS in this regard. The analyses presented in this report were produced with either SPSS, Stata, HLM, or *Mplus* because the last three software packages either provided specific analyses not available in SPSS or superior analyses based on analytical options, available statistics, and/or greater efficiency (i.e., HLM provides the most options and is most efficient for multilevel modeling with very large samples; *Mplus* is superior to Stata in this regard for latent growth curves; Stata provides broader options for propensity score matching relative to SPSS). Each syntax program submitted to ICPSR indicates the applicable software and provides the necessary language for producing the statistics in this report. However, syntax is not provided for the HLM analyses because the software is interactive. For these analyses, descriptions of how to proceed through the software in order to produce related analyses herein are provided instead.

Data for this project reflect information on IPs and facilities provided by ODRC. Variables were derived from administrative data systematically collected by the state between 2007 and 2016 (i.e., we created variables for the statistical analyses described herein by transforming the

administrative data in its original form). The applicable administrative data files were uploaded to a secure server for our personal access by ODRC. Other assorted measures were created by the research team using publicly available records and reports published on the ODRC website or from other sources. In this section, we describe generally what these data and records included. However, each analysis required different versions, subsets, or subgroups from the data based on the unique requirements of any given research question and set of analyses. The sections that follow focus on each of the primary research questions of the project and within those sections we describe the requisite data and measurement decisions that were made and list the variables used in those analyses. The data files and syntax archived at ICPSR will produce all of the statistics presented herein.

ODRC provided detailed individual-level information for all IPs who spent time in Ohio prisons from January 1, 2007 to December 13, 2016. There were 224,322 persons admitted to Ohio prisons during this time but useful information was limited to 224,288 persons due to the absence of movement and facility data for 34 individuals. From the pool of 224,288 IPs, 183,872 individuals (82 percent) were released from prison within the 10-year period.

The administrative data included information across the following domains: demographics (sex, birth year, race, ethnicity), incarceration history in Ohio, felony offense levels incarcerated for (F1A through F5), all mental health assessment scores and dates during the study window, security threat group (gang) activity, admission date, release date (if any), security classification, reading and math scores on the Comprehensive Adult Student Assessment Systems (CASAS) aptitude test, prison GED program completion, recovery services program participation and withdrawal/completion dates, prison industry job participation, substance abuse risk score (from the Texas Christian University Drug Screen II assessment; Institute of Behavioral Research, 2007), visitation dates during confinement, dates and types of all rule violations committed during the study window, dates of all RH placements, dates of all other movements within the Ohio system and the facilities moved from and to, and dates of an individual's return to prison for a new crime or parole revocation (through May 2021).

Relevant description of the less intuitive study variables:

Regarding mental health scores, Kimberly Roschie (Training and Education Manager for Behavioral Health operations within ODRC) provided the following background: Following the disposition section of the "Mental Health Evaluation (DRC5161)," an offender is assigned a mental health classification, and an "Independently Licensed Mental Health Professional then completes a Mental Health Classification (DRC5286) on all offenders who have had a mental health evaluation completed." This assessment has been in use since the beginning of our study window and has never been validated. For classification purposes, ODRC designates an IP's mental health as follows: no mental health issue; mental health issue but not an intellectual and developmental disability (psychotherapy track); and seriously mentally ill (chronic care track). "Psychotherapy track" includes a DSM-IV diagnosis, the offender is receiving mental health services which either include or do not include medication prescription, and "the offender's acuity functional level is not impaired as demonstrated in a pattern of high risk behavior." "Chronic care track" includes offenders with the SMI designation – "a substantial disorder of thought or mood which significantly impairs judgement, behavior, and capacity to recognize reality or cope with the ordinary demands of life within the prison environment and which manifested by substantial pain or disability." They may have any DSM-IV diagnosis. A limitation of the mental health data is possible misclassification due to the use of an instrument

that has not been validated and/or missing cues elicited by certain IPs that would have led to their reassessment of mental health during incarceration.

Recovery services programs are rehabilitative substance abuse programs involving progression through a curriculum that seeks to address documented substance abuse problems assessed via the Texas Christian University Drug Screen II instrument. It has been evaluated and ODRC designates its recovery service programming as reentry-approved.

GED prison programs are the only mandated prison programs in Ohio. Anyone without a high school diploma or GED at admission is required to participate in the GED program for up to 6 months. Participation is voluntary thereafter if the individual has not yet earned a GED.

The CASAS aptitude test administered at intake is designed to assess the relevant real-world basic skills of adult learners (Comprehensive Adult Student Assessment Systems, 2015). CASAS tests provide the research-based measurements of skills relevant to effective functioning at work and in life such as reading comprehension, mathematics, writing skills, and workforce preparation. Every individual sent to an Ohio prison is required to take reading and mathematics tests at intake. The reading score of CASAS ranges between 150 to 260, with higher scores representing more advanced literacy skills. In practice, the scale is divided into five levels from A (Beginning Literacy, 200 and lower) to E (Advanced Secondary, 245 and higher).

Security threat group activity is recorded at four levels in Ohio: not a gang member/no participation in gang activities, passive (inactive gang member), active (active membership in a gang but not a threat to order and safety), and disruptive (engages in gang activities within prison that pose threats to order and safety).

Sentence length is measured in months and is capped at 360 months for most analyses due to the heavily skewed distribution. (The analysis of the person-program file included the natural log of sentence length which sufficed for this particular group of IPs.) Sentence length is the sentence administered by the court. Some IPs were either released before the administrative sentence termination date or after the date, but the original scale is retained because it provides an additional indicator of risk and offense severity. For purposes of screening cases based on time spent in prison for some of our analyses, we used the movement data mentioned above because it included the dates of every IP's entry into the system as well as last recorded move, including exit from the system.

Risk assessment scores were available for less than half the pool of IPs examined because the instrument changed during the study window, and so they are excluded from all analyses described here. The pre-prison and in-prison variables included in these analyses account for slightly over half of the variance in Ohio Risk Assessment (ORAS) scores provided by ODRC for a subset of cases. Strongest predictors/proxies of risk include sentence length, most serious felony offense level incarcerated for, gang activity levels, prior prison sentences in Ohio, facility placement after classification at intake, and an IP's age.

Recidivism data are limited to information on the dates and reasons for returning to an Ohio prison. Aside from prison returns for new crimes, the data include prison returns for multiple other reasons that we designate as "technical violations." This group of violations includes shock probation return, shock parole return, furlough/transitional control return, parole return, intermediate transitional detention return, judicial release return, and post-release control return.

Throughout our analyses we treat the 224,288 persons reflected in these administrative data as the "population" of admissions during the 10-year study window even though this excludes 34 individuals. Most of our analyses include hypothesis testing and, as such, we treat these cases as an analytical "sample" of prison admissions under the assumption that it is a representative

cross-section of persons admitted to Ohio prisons before and after the study window. However, we cannot speak to the specific time frame of generalizability (e.g., three years before through three years after, versus 20 years before through the present).

The data provided by ODRC enabled us to track 82 percent of all persons admitted to Ohio prisons between 2007 and 2016 for the duration of their sentences (including facility transfers, RH placements, rule violations, changes in mental health status, and recovery services program participation). ODRC also provided individual level demographic, infraction, and movement data throughout the study window for all persons already housed in Ohio prisons on January 1, 2007. In conjunction with the individual level admissions data, we were able to compute aggregate monthly counts of facility, SRH, and ERH populations in addition to monthly rule violation rates for the ten year period. These aggregate counts are valuable for measuring prison- and system/state-level trends and prevalence. We constructed longitudinal facility level measures that describe population level dynamics in the prison system, such as charting trends of SRH and ERH usage across the entire state during our window.

There were two sets of data transformations for the study. The first set of labor intensive data management procedures involved transforming the individual movement/RH fields into variables that could be examined with statistical software, determining the month numbers during the 120 month study period when each IP committed a rule infraction and occupied a bed at a specific facility or within a specific RH unit and for how long (for creating the aggregate population counts and infraction rates), and working across the movement and misconduct data to identify the rule violations corresponding with each placement in RH throughout an IP's sentence.

Regarding ODRC's movement data file, IPs in our analysis moved anywhere from once after initial classification to well over 100 times for a small group of IPs during the ten year period. These movements included facility transfers unrelated to ERH (e.g., from a higher security unit in one facility to a lower security unit in a different facility), placements in SRH (within the same facility), and placements in ERH (involving movement to a supermax unit in a different facility). To facilitate data entry by prison staff, the original data base was set up so that the most recent move was classified as movement #1, the second most recent as movement #2, and so on. A new entry for a particular IP would then shift all existing fields to the right and re-designate each movement field as +1. This meant that "movement #1" could have been the second move for some people or the 7<sup>th</sup> move for others (as an example). Therefore, the data had to be flipped and the fields re-organized so that everyone's first movement was at system intake, second movement was post-classification, last movement was system release, and everything in between fell in chronological order. Also to this end, redundancies in movement data had to be screened and removed (e.g., movements #3 and #4 were the same move for a particular IP). In short, the original file structure prohibited use of "loop" syntax to facilitate creation of the new data structure.

The second set of data transformations were perfunctory and primarily involved recoding ODRC's scales for particular fields into variables for a statistical analysis (e.g., recoding a nominal scale into a series of dummy variables, recoding a string variable such as type of rule infraction into a numeric variable, etc.). Creation of the rule infraction variables also involved transforming the original "long" data file with infractions as the units of analysis to a "wide" data file with IPs as units, and then classifying each of the 62 possible violations into broader subgroups of violations (e.g., violent, property, drugs, offenses that would still be "crimes" outside prison, more discretionary offenses, etc).

All individual level data transformations were necessary to enable statistical analyses with standard software packages such as SPSS and Stata, as well as with more specialized packages such as HLM and *Mplus*. The analyses described in this report were derived from the transformed data files. These files were deposited with ICPSR in December 2021.

Facility level data were also examined for the project. Most facility level measures were derived by aggregating the individual level data described above, but a handful of measures for certain analyses were obtained from different sources. Specifically, each facility's design capacity in 2007 (the beginning of our study window) was provided by ODRC, as was the proportion of each facility's population housed in maximum security in 2007. Two other facility measures capture prison officer attitudes derived from survey data compiled from these same facilities between 2007 and 2008 for a separate study (ICPSR 34317; Steiner and Wooldredge, 2020).

### **3. Prevalence and Trends in the Use of Restrictive Housing**

This set of analyses focuses on establishing an empirical understanding of prevalence and trends in the use of SRH and ERH in Ohio prisons. We produce a series of plots that provide a detailed portrait of the number and percent of people spending time in these kinds of placements over the course of our 10-year observation window and in doing so illustrate the extent to which RH usage varies or is stable over time and across facilities. These estimates of prevalence and variation over time are important as a reference for assessing the magnitude of any benefits and harms that come from RH usage. For example, the existence of racial disparities in RH use could become more problematic as the prevalence of RH increases, whether over time or across different types of facilities. More than that, such trends and variation in them are perhaps most useful for the questions they raise. Variation/stability across time and place, for example, raises important questions about the causes of systems- and facility-level variation, or stability, in RH usage. We speak to these possibilities in our description of the findings below.

#### **3.1 Analytic data description**

As described above, the individual movement data for both prison admissions during the 10-year window and persons housed in Ohio prisons on January 1, 2007 were used to create facility-month counts of individuals placed in SRH within each facility as well as individuals transferred to ERH in separate facilities. Classification data were also used for counting placements in ERH because an ERH placement requires both a facility transfer (to a maximum security facility; security levels 4b and 5 in OH) and a change in classification to one of these security levels. SRH placements do not correspond with changes in security levels, and so the movement data was sufficient for targeting all SRH placements during a specific month. Also for the SRH analyses, we used the movement data to count the number of days individuals stayed in SRH during each of the 120 months examined. We aggregated length of stays in SRH by month for each facility to create monthly average days spent in SRH per facility. Average days per months spent in ERH is not useful information because most ERH stays span several months. After inspection of the monthly estimates of placements and average length of stay in SRH, we decided to exclude all moves in 2007 because of dramatically different estimates compared to 2008-2016. ODRC research staff agreed that these estimates should be removed from the report, and staff suggested that there could have been differences in reporting practices in 2007 because that was the first year ODRC began to compile information on movements in a single data base.

We also examine whether these trends vary across types of facilities. Specifically, we examine whether SRH usage differs between male and female facilities and also whether SRH and ERH usage differs based on the security level of the facility. Inconsistencies in trends could reflect differences in need (e.g., males versus females, or minimum security versus medium security), but they could also reflect resource differences (more SRH units in certain types of facilities).

### 3.2 Findings—Short-term restrictive housing

Before turning to discussion of the longitudinal trends in RH usage, here we describe key facts about SRH usage aggregated across the study window (not shown in tables and figures):

- We found that 36.2% of people housed in Ohio prisons experienced at least one placement in SRH.<sup>4</sup>
- On average, 3,292 individuals are placed in SRH per month in Ohio, which is roughly 6 percent of the prison population. This includes 3,053 males and 196 females, or about 6.7 percent of males and 4.6 percent of females.
- There is also some variation, on average, based on security level: minimum security facilities place about 5.5 percent of their population in SRH per month, compared to 9 – 10 percent for both medium and maximum/close security facilities in any given month. Similarities between medium and maximum/close facilities might be explained by one of two factors. First, heightened security measures in maximum security facilities other than SRH practices may reduce the need for SRH and keep the placement rate at similar levels of that of medium security. For example, all maximum security cells in Ohio are single-person cells, so IPs in maximum security may be confined to their cells for misconduct. A second and related factor is that staff in maximum/close facilities may simply view SRH transfers as unnecessary given the already heightened restrictions and security in place.
- On average and across the prison system, IPs placed in SRH stay there for about 11 days (10.7). Average days spent in SRH stays do not vary in any substantively interesting ways across facility types. In fact, every facility has an average SRH stay of about 10 – 11 days, except for medium security facilities which is closer to 13 (12.7) days on average. In conjunction with placement rates, it appears that SRH might be used most severely in medium security facilities (at a higher rate than minimum security facilities and for longer periods than maximum security/close facilities).

Next, we turn to some key findings and observations from the tracking of longitudinal trends in the use of SRH:

- We see that following a spike in SRH placements in early 2009, peaking at 4,431 placements in February and then leveling off through 2011, SRH placements across the Ohio prison system trended downwards. These trends are reflected in figure 3.2.1, which also shows a

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<sup>4</sup> This estimate is based on a query of all persons housed in OH prisons between 2008 and 2016 and identifying what percentage had at least one housing stint in some form of SRH (36.2% = 98,951 out of 272,828).

close correspondence between counts of individuals placed in SRH and proportions of the prison population placed, in any given month.

- Figure 3.2.2 suggests that as the use of SRH declined some over time (after 2011), during our window, days spent in SRH eventually declined as well, but only after 2014.
- Apart from post-2014 declines in average days spent in SRH, figure 3.2.2 shows that as placements in SRH peaked in 2009 – 2011, time served in SRH was comparatively low. This is possibly due to practical constraints that occur when SRH usage increases, resulting in a greater need for bed space, which then leads to increased churning of IPs in and out of SRH housing. A similar potential correction occurs between 2011 and 2014 that further supports this possibility. SRH usage declined during those years, but SRH days increased. This then may be a result of reduced bed space pressures that allow for IPs to stay in SRH for longer periods. That said, the decline in average days spent in SRH housing between 2014 and 2017 that coincides with usage declines does run counter to this explanation.
- Longitudinal trends in SRH usage suggest no substantively relevant differences in how SRH usage has changed over time between male and female facilities (figure 3.2.3). (Although the reduction in proportions is steeper in female facilities, both male and female facilities show some evidence of decline.) However, figure 3.2.3 does show that usage is higher in male facilities in every month across our window.
- Figure 3.2.4 suggests that after 2011, average days spent in SRH were nearly identical in male and female facilities. A much different story emerges pre-2011. During this part of our window we see that females were, on average, placed in SRH for longer periods. In many instances, females were held for eleven or more days whereas males, on average, were held for ten or fewer days. We suspect that policy changes placing restrictions on days spent in SRH housing led to closer correspondence in average stays between male and female facilities, post 2011.
- Figure 3.2.5 teases out differences in RH usage across facility security level. There is a lot of movement in SRH usage, especially in medium and maximum security facilities. The trends suggest that minimum security facilities decline fairly consistently in SRH usage post- 2011. Medium security facilities actually experience an increase in SRH usage after 2012. Maximum security facilities appear to be fairly stable and high in SRH placements, except in 2016 and 2017 where we see a noticeable dip in usage.
- Similar to what we saw when comparing male to female facilities, figure 3.2.6 shows close correspondence in average days spent in SRH after 2011 across facility security levels.

### 3.3 Findings—Extended restrictive housing

- ERH is far less prevalent compared to SRH. On any given day, our estimates suggest that about 600 persons, or a little more than 1 percent of the OH prison population, is in ERH

housing.<sup>5</sup> Across our study window, 5,510 people—or about 2.02 percent of IPs in OH between 2007 and 2016—experienced at least one stay in ERH housing.

Given that this capacity is generally stable over time, especially so relative to SRH housing, we focus on trends in placement in ERH housing over the course of our window. In addition, our trends track specifically transfers to ERH/supermax housing of IPs from minimum and medium security facilities. We focus on these types of admissions to ERH/supermax for several reasons: (1) They constitute the primary method through which IPs are placed in ERH. Only a small subset of ERH IPs are placed there immediately upon admission into the prison system and they are rarely sent from other types of facilities (e.g., pre-release centers, medical centers). (2) These placements epitomize the intended purpose of supermax incarceration, which is that prison facilities use ERH in response to critical safety and order problems and, by extension, to relieve prison facilities from having to manage the “worst of the worst” of the incarcerated population in efforts to improve systemwide prison safety and order (Riveland, 1999; Butler et al., 2013). (3) By extension, trends in these specific types of placements best hone in on the behavior of the prison system in terms of its use of ERH over time. Later in the report (see section 7) we examine impacts of prison system decisions to transfer IPs to ERH on facility-level misconduct and violence among these 19 facilities.<sup>6</sup>

Key findings of the trends analysis are described below:

- On average, 51 people are transferred to ERH housing from minimum and medium security facilities each month. This statistic varies dramatically based on security level—about 45 people are sent to ERH from medium security facilities any given month, compared to about 7 people from minimum security facilities per month.
- The longitudinal trends reflected in figure 3.3.1 are consistent in that they show steady peaks followed by valleys. That is, months with high counts of transfers to ERH are typically followed immediately by months with far fewer ERH transfers. This is likely reflective of bed space restraints in ERH housing. Between 2010 and 2013 we see some of the most dramatic variation in ERH transfers. There are a few dramatic leaps in ERH counts where the number of transfers reaches above 100 and 150 in some select months. Those months are typically preceded and followed by months with substantial dips in ERH transfers.
- Figure 3.3.1 also illustrates substantial differences in security level. It makes logical sense that minimum/low security facilities send far fewer individuals to ERH in any given month compared to medium security facilities. That said, in relative terms, trends in ERH transfers look similar in that the counts are largely flat for both facility types, with a consistent set of peaks and valleys in sends over time.

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<sup>5</sup> This estimate is based on a query of the classification and housing status of all people incarcerated in Ohio prisons that were in security level 4b (547), 5a (42), and 5b (21) on the first day of our study window (January 1, 2007). This was made possible because ODRC provided the research team with a data file on the security classifications of all persons already housed in Ohio prisons on January 1, 2007.

<sup>6</sup> We tracked and measured “transferred to ERH” if an IP had their security reclassified as level 4B, 5A, or 5B and then subsequently transferred to either Ohio State Penitentiary or Southern Ohio Correctional Facility.

## 4. Predictors of Restrictive Housing Placements

Understanding predictors of placements in RH provides additional insight into when and how prisons use the practice. This section examines those predictors. The first set of analyses focuses on establishing two things: (1) profiles of who is placed in SRH and ERH as well as who is never placed in either for the duration of their sentence, and (2) any potential disparities that emerge in placements in SRH and ERH. The former compares univariate descriptive statistics across these groups and the latter utilizes multivariate regression techniques (sections 4.1 and 4.2).

These analyses are followed by an additional and “deeper dive” into racial disparities that we identified in SRH placements (sections 4.3 and 4.4). This disparities analysis is also motivated by several recent studies that have investigated disparities in disciplinary segregation use in other states and contexts (Butler and Steiner, 2017; Cochran et al., 2018). In addition, our analysis of SRH predictors includes a contextual analysis that explores whether theoretically relevant characteristics of facilities influence correctional officers’ and staff’s decisions to respond to infractions with disciplinary segregation and whether these contextual characteristics operate differently for non-white IPs. This approach is akin to that taken in the sentencing literature (for discussion drawing connections between rule infraction board decision making in prisons to analogous decision making in courts, see Logan et al., 2017; Cochran et al., 2018) and as such we focus on facility characteristics that can tap into the familiarity between IPs and staff, the perceived dangerousness of a prison population, and staff willingness to rely on more punitive and coercive sources of power.

### 4.1 Analytic data description—Predictors of SRH and ERH

This analysis includes all individuals admitted to and released from OH prisons within our study window (2007 through 2016), which encompasses 82 percent of the admissions pool. The analysis proceeds in two parts. First, we examine the profile of IPs that experience different forms of RH. We differentiate RH subgroups into the following five categories: no SRH or ERH, any SRH stays (with no ERH stays), 2+ SRH stays (with no ERH stays), any ERH stays, and 2+ ERH stays. The SRH categories do not include individuals who experienced ERH to better isolate the factors associated with SRH. Due to the high prevalence of SRH, it is not possible to focus only on ERH IPs who did not experience SRH. This segment of the analysis includes all 183,872 individuals admitted and released during the 10-year period, broken down by the various subgroups noted above.

The profile (bivariate) analyses include both background characteristics (demographics, prior prison terms, substance abuse score at intake, etc.) as well as experiences that unfold over the prison term (visitation, work in prison industry, worst mental health status during sentence, etc.). These provide potentially important insights into the types of experiences that overlap with various RH subgroups. However, factors reflecting in-prison experiences are excluded from the multivariate logistic regression analyses predicting membership in each of these subgroups because of the problems those variables create for causal order (e.g., RH placements necessarily interfere with jobs, visitation, and program participation). Those models thus only include factors recorded at intake, including mental health scores. Each multivariate model was estimated for the entire pool of 183,872 IPs admitted and released between 2007 and 2016.

### 4.2 Findings—Predictors of SRH and ERH

Table 4.2.1 presents univariate descriptive statistics that illustrate the profiles of the no-RH and RH groups noted above. Key findings:

- SRH and ERH IPs are generally younger than no-RH IPs, and the ERH group is younger (on average) than the SRH group. The average age for the no-RH subgroup is 34.1. The average age for the RH groups are all under age 30 and the lowest is for IPs that experience 2+ ERH placements (25.6).
- Each SRH and ERH group contains a substantially higher proportion of non-Latino African American IPs, and the ERH groups include the largest proportions of African Americans. The no-RH subgroup is 38 percent African American whereas all RH categories contain more than 45 percent. The ERH and ERH 2+ groups are 53 and 56 percent African American, respectively.
- SRH and especially ERH IPs have more serious offending profiles. These groups have substantially longer sentence lengths, substantially larger proportions of gang members, and larger proportions with the most serious felony convictions (felony 1s and 2s).
- Mental health emerges here as a strong correlate of all kinds of RH stays, but especially 2 or more stays in SRH and ERH. For example, 9 percent of no-RH IPs are classified as chronic care track (per ODRC) compared to 17 percent of each of the SRH 2+ and ERH 2+ groups.
- SRH and ERH IPs accumulate far more infractions than no-RH IPs, with the highest counts of violence, drug offenses, and rule violations overall found in the ERH group.

Table 4.2.2 presents results from multivariate logistic regression models of each type of RH, with only pre-prison factors as predictors (for the reason noted earlier). These results illustrate potentially critical disparities in RH placements based on an IPs race/ethnicity and mental health at intake. Main findings from table 4.2.2:

- Substantial racial disparities exist in SRH and ERH placements. Non-Latino African American IPs are significantly more likely to experience SRH and ERH, and also multiple stints of SRH, compared to white IPs. However, African Americans were not more likely to experience multiple stays in ERH relative to whites.
- Substantial ethnic disparities emerge in ERH placements. Non-Latino African American and Black Latino IPs are substantially more likely to experience ERH. (Odds ratios are in the same direction for ERH 2+, but do not reach statistical significance.)
- Gang activity emerges as one of the strongest predictors of SRH placements and especially ERH placements.
- Mental health is also a strong and consistent predictor of SRH and ERH placements and especially multiple stints of each.

#### 4.3 Analytic data description—A deeper dive into disparities in SRH

Here, we take a closer look at the potential disparities in SRH placements by systematically assessing racial and ethnic disparities in the use of SRH in response to infractions (i.e.,

disciplinary segregation). To do this, our analysis is limited to the admissions cohort within our study window and we focus only on those within that cohort found guilty of any kind of in-prison infraction. The sample that meets these criteria includes 81,673 IPs admitted to OH prisons between 2007 and 2016. We explore both individual and facility characteristics' association with SRH decisions. Thus, our analyses include 33 facilities that were in use during the study window. Our analyses also focus only the first guilty infraction for each individual, which allows us to avoid problems that might stem from unmeasured factors linked to repeat offending.

We focus on two decision points. The first is whether, upon a write-up for an infraction, the IP is placed in SRH prior to their hearing with the rule infraction board (RIB). We refer to this outcome as “pre-hearing SRH.” The use of SRH at this stage is labeled “security control” by ODRC to reflect RH placement for the purpose of safety. This decision point might be considered similar to pretrial detention outside of the prison context. The second decision point focuses on whether an IP is sentenced to “post-hearing SRH” upon being found guilty of an infraction. This is essentially the punishment or sentencing decision. The use of SRH at this stage is labeled “disciplinary control” by ODRC to reflect RH placement for the purpose of punishment after guilt is established.

We use multilevel logistic regression analyses that account for the clustering of IPs within prisons. Each IP was nested within the facility in which the first infraction occurred. Univariate descriptive statistics for all variables in the regression analyses are included in table 4.3.1.

The IP-level covariates include the following: demographic characteristics (race and ethnicity, sex, and age); prior prison sentences; felony level linked to the most serious offense that led to incarceration; sentence length and time served at the incident; TCU score; a dichotomous indicator of whether someone worked a prison industry job while incarcerated; binary indicators of gang activity levels (assigned by ODRC); year of offense; and binary indicators of the specific rule infraction(s). The pool of rule infractions is large but necessary because placement in pre-hearing SRH would be more or less pro forma for certain offenses. IPs scored 1s on more than one rule violation when cited for multiple violations.

The facility-level covariates include the following<sup>7</sup>: the facility's design capacity in 2007 (the beginning of our study window); the proportion of the facility population housed in maximum security in 2007; a measure of whether officers were troubled by rule enforcement in their facility<sup>8</sup>; a measure of officers' reliance on legitimate power<sup>9</sup>; and a measure of whether a facility housed women only.

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<sup>7</sup> Measures of prison officer attitudes used here came from survey data compiled from the same facilities between 2007 and 2008 for a separate study (ICPSR 34317; Steiner and Wooldredge, 2020).

<sup>8</sup> This measure is derived from a principal components analysis of four binary (disagree/agree) survey items, including (1) The rules for IPs are under-enforced in this facility, (2) It is impossible to issue disciplinary tickets to inmates for all rule violations we are aware of, (3) The warden usually supports my decisions regarding when to issue disciplinary tickets (reverse coded), and (4) When I question inmates about a rule violation they may have committed they often verbally attack me.

<sup>9</sup> “Officers' greater reliance on legitimate power” for inmate compliance is the facility mean of a 4-category officer survey item (from strongly disagree to strongly agree). The item was adapted from Hepburn (1985): Inmates typically do what I ask them to because they believe I have the authority to tell them what to do.

#### 4.4 Findings—A deeper dive into disparities in SRH

The analysis begins with a focus on pre-hearing SRH, followed by a focus on post-hearing SRH. Within each of these two analyses, estimates of individual-level factors are presented first, followed by facility-level factors. We see the following key findings:

- Non-Latino African American and Latino IPs are more likely to be placed in pre-hearing SRH (model 1 in table 4.4.1), but this holds only for African Americans after controlling for all covariates except for rule infraction type (model 2 in table 4.4.1)
- The odds of pre-hearing SRH placement are not significantly higher for either African Americans or Latino when types of rule violations are controlled (model 3 in table 4.4.1). The race effect is significant but in the opposite direction, suggesting that disparities are greater for some types of rule violations and less for others.
- The fully specified model 3 in table 4.4.1 suggests that males are less likely than females to be placed in pre-hearing SRH and that IPs with longer prison sentences and more serious felonies for which incarcerated are *more* likely to be placed in pre-hearing SRH.
- Facilities with larger portions of IPs housed in maximum security, with more officers troubled by rule enforcement, and that house females have higher odds of using pre-hearing SRH. (Table 4.4.2)
- We also explored cross-level interactions to assess whether any facility characteristics exhibited stronger impacts on the odds of pre-hearing SRH for non-Latino African American IPs relative to whites (variance in the race effect across facilities was statistically significant at  $p < .001$ .) Table 4.4.2 illustrates that African American IPs are more likely to be placed in pre-hearing SRH in facilities in which officers are more troubled by rule enforcement.
- Non-Latino African American and Latino IPs are more likely to be placed in post-hearing SRH, and these odds remain significant even when controlling for all covariates except for rule infraction type. (Table 4.4.3)
- Racial and ethnic disparities in post-hearing SRH placements appear to be explained in large part by racial and ethnic disproportionalities in the types of infractions for which IPs are found guilty. (Table 4.4.3)
- By contrast to pre-hearing SRH, males are more likely than females to receive post-hearing SRH as are IPs who were imprisoned for more serious felonies and those who are deemed disruptive gang members. (Table 4.4.3)
- IPs who were placed in pre-hearing SRH have lower odds of post-hearing SRH placements. (Table 4.4.3)
- Larger prisons are more likely to use post-hearing SRH, as are facilities with a higher proportion of the population in maximum security as well as facilities for women. (Table 4.4.4)

- African American IPs have a higher likelihood of post-hearing SRH placement in larger facilities. However, African American IPs have a lower likelihood in facilities with a higher proportion of the population in maximum security and in which officers express a greater reliance on legitimate power. (Table 4.4.4)

## **5. Impacts of Restrictive Housing on Misconduct and Programming During Incarceration and the Correspondence between Mental Health and Restrictive Housing Use**

This section centers attention on developing an understanding of how RH usage either influences or corresponds with three key in-prison outcomes. The first outcome of interest is misconduct. This analysis focuses on identifying the impacts of SRH on the odds of rule violations given that individual-level impacts on future misconduct is one of the primary and explicit goals of using SRH in response to an IP's misbehavior. This analysis is a critical one for evaluating the central policy logic that undergirds mass use of RH in response to infractions (i.e., disciplinary segregation) in prison systems.

The second outcome focuses on how both SRH and ERH are associated with mental health. This relationship has probably received more attention than any other in the RH literature, but it is also one of the most challenging to evaluate given that both mental health impacts the odds of placement in RH and that RH experiences could adversely influence mental health (see the earlier discussion of this literature above). Our analysis will focus on both possibilities for both SRH and ERH in OH prisons. That is, we examine the correspondence between mental health and RH placements by examining how mental health status influences odds of placement in SRH and ERH, and also the extent to which mental health status and the odds of RH placements correspond over time.<sup>10</sup>

The third outcome focuses on the potential impacts of RH on rehabilitative programming. To our knowledge, no such analysis exists in the literature, but program disruption is one potentially critical collateral harm stemming from RH usage. This analysis focuses on SRH only because, logically, ERH placements are by design going to disrupt programming, at least for an extended period of time, due to the nature of supermax and supermax-like placements and the inherent challenges to administering programming-as-usual given the heightened restrictions imposed. What is less known is whether SRH placements, which can sometimes be as short as one day, have a disruptive effect. If they disrupt programming, especially curriculum-based and sequential program types, this would need to be an important part of future policy discussions that consider the costs and benefits of policies like disciplinary segregation, which impact a large swath of IPs over time.

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<sup>10</sup> We are reluctant to claim that the longitudinal analyses can establish a causal impact of RH on mental health given the nature of the data examined. That is, an IP's mental health can deteriorate during incarceration with or without placement in segregation. Amaker (2019) found that administrative segregation and confinement in general population contributed equally to subsequent psychopathology, suggesting that it is confinement itself and not so much differences in levels of social interaction that matter. Therefore, while it might be tempting to infer causality with the findings described here, poorer mental health could contribute to higher odds of placement in RH if the latter is inadvertently treated as a tool for managing those perceived to be more recalcitrant IPs who behave as such due to poor mental health.

## 5.1 Analytic data description—SRH and misconduct

This analysis focuses on how SRH, which is used primarily for rule violators, influences future rule infractions. To estimate this effect most accurately, we made the following data and sample restrictions and decisions. We focus only on IPs who have been found guilty of rule infractions, since those who are not found guilty of rule infractions are, for the most part, ineligible for SRH in OH prisons. The sample only includes IPs who stayed in the same facility for at least twelve months after either their release from SRH or after their hearing with the rule infraction board in instances when the person was not placed in SRH.<sup>11</sup> These decisions allow us to track future infractions on a monthly basis for up to a year and we can avoid the potential problems that might stem from unmeasured differences in facility contexts that may be associated with future behavior or likelihoods of being caught or written up for infractions. Our analysis also focuses only on each person’s first guilty infraction to avoid any confounding that might stem from misconduct histories and/or someone accumulating a history of multiple stays in SRH. We also excluded a small handful of cases that committed infractions that always resulted in SRH placement during the study window and so could not logically be comparable to individuals that fall in the non-SRH group (e.g., escape).

With these restrictions, we had a pool of 15,011 IPs. 10,336 of these individuals were placed in SRH in response to their infractions and 4,675 of them were *not* placed in SRH. The dependent variables of interest include the following dichotomous measures taken during each person’s follow-up period that tap into different types of behaviors: any rule violation, any “crime” violation (e.g., violence, theft, property damage, selling or using drugs); any violent offense; and any of the more “discretionary” rule violations for which the use of SRH might be questionable because of its severity relative to the offense (e.g., disobedience of a direct order, refusal to carry out work or other assignment, refusal to accept an assignment, disrespect to an officer/staff/visitor/other IP, being out of place).

The independent variables of interest included a dichotomous measure of any placement in SRH in response to a rule violation and a continuous measure of the number of days confined in SRH in response to a rule violation.

We use a propensity score matching approach to create equivalent/comparable treatment (SRH) and control (no SRH) groups (e.g., Becker and Ichino, 2002; Apel and Sweeten, 2010). The estimated propensity score, reflecting the propensity of placement in SRH for a rule violation, is used to match treated to non-treated cases and to compare the percentage of IPs who subsequently engaged in each type of misconduct across groups. We also estimate multilevel logistic regression models (IPs nested within facilities) to estimate the effects of length of time spent in RH on these same outcomes.

The variables used to estimate the propensity of placement in SRH for a rule violation are treated as statistical controls in the multilevel logistic regression models (see table 5.1.1). These variables include the following: categorical measures of rule infraction type; number of rule violations; demographics; prior prison sentences; most serious felony level for which incarcerated; gang activity levels; TCU substance abuse score; an indicator of whether someone worked a prison industry job; and a dichotomous measure of facility (excluded from the multilevel logistic models given that the modeling accounts for this clustering).

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<sup>11</sup> Separate analyses were conducted with subsamples housed in the same facilities for at least one month, two months, and so on through 11 months in order to include more cases in these analyses. Findings were very similar and so only the findings for the 12-month sample are described here to avoid possible confusion in interpretations when comparing groups that differ somewhat in composition across the monthly periods.

## 5.2 Findings—SRH and misconduct

The propensity score is estimated using the subsample of 15,011 IPs noted above. We use one-to-one nearest neighbor matching without replacement and a caliper of 0.047. We have 4,675 IPs in each of the treatment and control groups since there are 4,675 rule violators who were not placed in RH and cases are matched without replacement. Caliper width is determined using the Rosenbaum and Rubin (1985) method. Matching results (not shown) are evaluated by comparing group means across the covariates and using *t*-tests to contrast post-matched treated and non-treated groups. Pre-matching, there are 42 significant group differences ( $p < .01$ ) and post-matching there remain only 6 group differences ( $p < .01$ ). Remaining differences even when significant were modest. More specifically, pre- and post-matching bias comparisons reveal relative success of the approach for creating equivalent groups. Mean bias unmatched is 6 percent compared to 1.9 percent post-matching. Median bias unmatched is 3.3 percent compared to 1.3 percent post-matching. Rubin's *R* unmatched is 0.58 compared to 0.74 post-matching.

The multilevel logistic models for time spent in RH are estimated for the pool of 10,336 IPs who were placed in SRH for their rule violations and remained at the same facility for at least one year after. Therefore, this second stage of the analysis of RH impacts on subsequent misconduct includes all of the cases excluded from the SRH group at the first stage of the analysis through matching without replacement.

Post-matching group comparisons on the misconduct outcomes appear in table 5.2.1 and the multilevel logistic regression results for time spent in SRH appear in table 5.2.2. Key findings:

- In general, most of the percentage differences in the prevalence of misconduct between the SRH and non-SRH groups are small (under 3%) even though differences ranging from 1.9% to 2.6% are statistically significant. (Table 5.2.1)
- Results for any rule violations are strongest (but modest) and most consistent: the SRH group is significantly less likely to engage in any new rule violations across all follow-up periods. These differences range primarily from 4 to 6 percent fewer IPs in the SHR group engaging in any type of rule violation, depending on the follow up period. (Table 5.2.1)
- When we focus on more serious infractions, we also see a suppression effect across time periods, but it is weaker and less consistent relative to “any violations.” For example, we see some reduction in “crime” infractions, but this difference is only significant in some follow-up periods and is never more than 2.5 percent. Something similar emerges for violence, but the association is even weaker. We see no impact on discretionary violations except in the 2-month follow-up period. (Table 5.2.1)
- A different picture emerges when we analyze days spent in SRH. Longer amounts of time spent in SRH are consistently linked to *higher* odds of rule violations. Specifically, we observed statistically significant increased odds for any violations and discretionary violations across all follow-up periods. We also observed statistically significant increased odds for any crimes and violence in the last four follow-up periods (9 – 12 months after release from SRH). (Table 5.2.2)

### 5.3 Analytic data description—Correspondence between SRH/ERH and mental health

Data for this analysis includes all IPs admitted to OH prisons between 2007 and 2016. The analysis progresses in two parts. First, we examine between-person differences in SRH and ERH stays as a function of mental health status, controlling for other theoretically relevant factors (see below). We use regression analyses to estimate two possibilities: the likelihood of placement in SRH and ERH during the first three months of a prison term, and also the total number of SRH and ERH placements for an individual over the course of our ten-year observation window. Binary logistic regression models are estimated for the odds of placement in each type of RH, and negative binomial regression models are estimated for the counts of these placements over the course of an IP's sentence during the study period. Negative binomial models were estimated instead of Poisson models because the standard deviation of each count is considerably larger than its mean. Aside from examining SRH and ERH placements separately, we also examine the odds and count of placements in both SRH and ERH combined.

Second, we examine the correspondence of within-individual change over time in an IP's mental health status and the odds of RH placement, controlling for within-individual change in an IP's odds of committing rule violations. As in the first stage of the analysis, we examine changes in the odds of SRH and ERH placements separately as well as combined. Latent growth curves were estimated for this segment of the analysis using 3-month periods as observation periods for mental health scores, RH placements, and rule violations. We examine up to 8 consecutive 3-month periods for a maximum of two years per IP. Models did not generate reliable estimates with more time periods because over half the sample had been released from prison within two years of admission. The use of *Mplus* for this segment of the analysis permitted inclusion of different numbers of time periods for the sample (e.g., four periods for IPs with one-year sentences versus eight periods for those with two-year sentences). *Mplus* also enables the inclusion of ordinal scales in these models, under certain distributional assumptions, and so we are able to examine the single 3-category scale of mental health classification provided by ODRC (Byrne, 2012). This scale is coded as no mental health (1), psychotherapy track (2), and chronic care track (3).

Two sets of latent growth models are estimated. The first set treats change in the odds of placement in RH as dependent on change in mental health status, controlling for change in the odds of rule infractions. This is consistent with the treatment of mental status as the independent variable in the between-person analysis. For these models, mental health is measured from the first 3-month period through the seventh period, and RH is measured from the second 3-month period through the eighth period. This approach provides temporal order between mental health status and RH placements.

The second set of latent growth models treats change in mental health status as dependent on change in the odds of RH placement, controlling for change in the odds of rule infractions. For these models, mental health is measured from the second 3-month period through the eighth period, and RH is measured from the first 3-month period through the seventh period. This approach provides temporal order between RH placements and mental health. However, an important caveat is that our findings reflect the use of 3-month lag periods, which assumes that processes occurring within any 3-month period impact mental health status the following period. Actual impacts may be shorter or longer, and so these findings should be treated as exploratory at this point.

To state differently, the first analysis of between-person differences focuses on the extent to which having a mental illness increases the odds of RH placements, and the second analysis of

within-person change considers the potential reciprocal relationship between mental health and RH, such that stays in RH might both be influenced by mental health status of an IP while also adversely impacting it. Emphasis should be placed on the correspondence between these factors as opposed to causality.

Descriptive statistics for these analyses are included in table 5.3.1. Our key independent variable is based on mental health designations made by ODRC, which designate IPs with either no mental health designation, or in one of two tracks: psychotherapy or chronic care (described in section 3.1). We measure mental health status at intake and then the most serious mental health designation made for an individual over the course of their prison stay during our study window. A status of “no mental illness” serves as the reference group in our analyses. Our multivariate regression models control for the following theoretically relevant factors: rule violations (during the first 3 months of the sentence and a count of rule violations over the course of the prison term); demographic characteristics (sex, age, race and ethnicity, education status); a count of prior prison sentences; most serious felony status of the IPs primary offense; sentence length and time served during the observation window; gang activity level (per ODRC); TCU substance abuse risk score; work in a prison industrial job; successful completion of a GED program during incarceration; CASAS reading and math assessment scores taken at intake; number of visits (during the first 3 months of incarceration and over the course of the prison stay during our study window; and the specific facilities in which an IP was placed throughout the study window (not shown in tables).

#### 5.4 Findings— Correspondence between SRH/ERH and mental health

The first part of our analysis focuses on between-person differences in mental health and the prevalence and incidence of SRH and ERH placements. Results from the binary logistic regression models appear in table 5.4.1 (RH placements in first three months of a prison term), and those from the negative binomial models of total placements during the study period are displayed in table 5.4.2 (count of RH placements over the course of a prison term). Key findings:

- Mental illness at intake (both psychotherapy and chronic care designations) is significantly associated with an increased likelihood of placement in SRH early in an IP’s sentence, with the more serious chronic care designation corresponding with even higher odds of placement. (Table 5.4.1)
- The positive effects of mental illness on SRH stands in contrast to the significant inverse effects of mental illness on ERH, possibly reflecting deliberate efforts by prison staff to avoid ERH for IPs with poor mental health, at least early in their sentences. Given the much larger number of SRH placements relative to ERH placements, the direction and magnitude of the mental health estimates for the odds of placement in either SRH or ERH, which are virtually identical to the estimates for SRH placements only, are being driven by SRH placements. (Table 5.4.1)
- We see similar findings for SRH placements as well as SRH and ERH placements combined when examining the counts of SRH and ERH placements. In contrast to the odds of ERH placements, however, both mental illness designations are positively associated with the count of placements in ERH. Efforts to avoid ERH in the early stages of incarceration for IPs

with poorer mental health might wane over time as staff become more experienced with and less tolerant of these individuals. (Table 5.4.2)

The second part of our analysis focuses on the correspondence between within-individual changes in mental health status and RH placements over the course of a prison term. These results appear in table 5.4.3 and include estimates of latent growth curves of an IP's mental health, SRH and ERH placements, and rule violations. The rate of change in each of these was significant over the two-year period ( $p < .001$ ). The first set of models in the table describe the regressions of the RH outcomes on mental health and rule violations, whereas the second set of models describe the regression of mental health status on each type/grouping of RH in conjunction with rule violations. Key findings:

- Poorer mental health over time corresponded with lower odds of placement in either SRH or ERH, although these odds were significantly lower only for ERH. Recall that poorer mental health at intake corresponded with significantly lower odds of ERH early in a sentence as well. Taken together, Ohio prison staff might be deliberate in efforts to purposely avoid supermax placements for IPs who have experienced a deterioration in their mental health, despite their higher odds of committing rule violations. This does not contradict the earlier finding that IPs with poorer mental health experience *more* SRH and ERH placements during a sentence because the between-person analysis does not consider how *change* in any one person's mental health might be treated in an institutional setting. Staff might be more attuned to sudden changes in any one person's mental health while also being less sensitive to individuals whose mental health and behaviors are more consistent over time.
- These results paired with the first set of results above suggest evidence for the idea that IPs with poorer mental health in general face a higher prevalence and incidence of SRH placements, but that a downward trend in an individual's mental health may set off a warning to Ohio prison staff to avoid placing these IPs in harsher environments that could exacerbate the problem or, at a minimum, would not help to counter a downward trend.
- Treating mental health as a possible outcome of RH, there is evidence that SRH placements significantly correspond with subsequent declines in mental health, as do SRH and ERH placements combined. However, the nonsignificant ERH effect on mental health suggests that the findings for SRH and ERH combined is driven solely by SRH placements. Although SRH stints are relatively short, IPs who move in and out of SRH on a more regular basis may be susceptible to a decline in their mental health. While we are reluctant to treat this as a causal effect without a more rigorous design, it does provide motivation for additional research.

### 5.5 Analytic data description—SRH and rehabilitation

Our analysis of SRH impacts on rehabilitative programming focuses on all IPs admitted during the study window who participated in recovery services programming in OH during this period. Recovery services is a rehabilitative program that involves progression through a program curriculum that seeks to address documented substance abuse problems assessed via the Texas Christian University screening instrument. It has been evaluated and ODRC designates its recovery service programming as reentry-approved. We focus on this type of rehabilitative

programming for this analysis because it is viewed as evidence-based and also because it involves progression through a curriculum sequence, and it is prone to disruption by events such as misconduct and subsequent placement in SRH. Rehabilitative programs that are not curriculum based could more easily be resumed following a stint in SRH and thus such programming is not nearly as susceptible to disruption or withdrawal.

The sample for this analysis includes 34,973 person-programs. In other words, the unit of analysis is an IP who participated in a specific program. There are several of these programs across the state, so some IPs appear more than once in the data set if they participated in two or more programs during the window. This combination of unique persons (x) unique programs produced 34,973 cases for the analysis. The focus on person-programs allows us to identify whether a stay in SRH occurred during the program (i.e., after an IP's program start date) and whether it was associated with program disruption/failure after controlling for theoretically relevant and potentially confounding factors. All person-program periods were included in our final analysis except for individuals presenting the following circumstances or data problems: those scheduled to be released during the program timespan; those who were missing or had a typographical error for their program start dates in the ODRC data file; those missing a program discharge date; those serving life or death sentences; and those who participated in programming but did not have a designated need for recovery services programming. These exclusions resulted in dropping of 5,225 cases from the original pool of 39,676 person-programs, which generated the final sample size of 34,973.

Our analysis uses a binary logistic regression model to estimate the impact of SRH placements during recovery services programming on program disruption, which is measured as withdrawal from the program. Descriptive statistics for all variables are included in table 5.5.1. We examined the two general types of SRH placements that might cause a programming withdrawal. The first is pre-hearing SRH, examined earlier for the analysis of racial disparities in SRH placements. IPs who have been written up for infractions, but not yet had guilt determined, can be placed in this type of SRH and it may just as easily disrupt programming as any other form of RH. The second is post-hearing SRH placements after guilt has been established (also examined earlier). Post-hearing SRH is disciplinary segregation and so is typically longer in duration relative to pre-hearing SRH and may exert stronger adverse impacts on programming disruption.

Our logistic regression model controls for the following potential confounding influences: level of recovery services programming needs (per ODRC); whether an IP has a high school diploma or GED; mental health classifications (per ODRC); demographic characteristics (race, ethnicity, sex, age); prior prison sentences and most serious felony level for which incarcerated; sentence length; time served at the time of the offense; gang activity level (per ODRC); facility custody level; and counts of misconducts for which IPs were written up during the program period.

## 5.6 Findings—SRH and rehabilitation

Key findings from table 5.6.1:

- Placement in pre-hearing SRH is associated with significantly higher odds of programming disruption. Thus, even when someone is not actually found guilty of an infraction, being temporarily placed in SRH following an infraction write-up can undermine recovery services programming.

- Placement in post-hearing SRH is associated with a significant increase in the odds of programming disruption. This association is substantially stronger than that observed for pre-hearing SRH, providing further evidence that SRH can undermine efforts towards rehabilitation.
- Males are significantly more likely to withdraw from programs.
- Misconduct counts are associated with substantial increases in the odds of program disruption. This suggests that SRH placements exert a disruptive influence on programming goals net of and in addition to any influence of actual infractions.
- Older IPs are less likely to withdraw from recovery services programming.

## **6. Impacts of Restrictive Housing on Recidivism**

Here we turn to a focus on post-release impacts—recidivism, in particular—linked to RH stays. Most studies to date (see earlier discussion) have examined the association between long-term stints in restrictive housing and recidivism, but we will focus on both SRH and ERH. The focus on SRH is unique in the literature and as such addresses an important gap, especially given the fact that a much larger proportion of IPs will experience SRH at some point in their incarceration stay.

A focus on RH and recidivism is helpful for evaluating the extent to which RH results in collateral harms either directly (e.g., increasing criminal propensity as a result of the segregation experience) or indirectly, such as via other mechanisms like inhibiting access to or completion of rehabilitative services (see section 5, above). A limitation of this specific analysis is that, if significant differences between RH and no-RH IPs are identified, data do not allow us to determine the precise mechanisms through which RH stays operate to influence recidivism propensities. The literature on RH has not yet explored these mechanisms, but these results provide important insights that should inform future investigations.

### **6.1 Analytic data description—SRH and recidivism**

This analysis focuses on individuals admitted into and released from OH prisons between 2007 and 2016 and who received at least one formal infraction write-up over the course of their prison stay. This sample selection allows us to account for characteristics and experiences of prison life over the entire course of an individual’s stay. The focus on IPs with infraction records is required because with very limited exceptions only individuals with infractions are placed in SRH. Gang members are also placed in SRH on occasion, but in our admissions pool there were only a handful of gang members who did not commit at least one rule violation during the study window. Thus, the effect estimates we generate are only applicable to the pool of people for which SRH could conceivably be applied, which is ideal.

Our dependent variable of interest is recidivism within three years of release from prison and we measure it in two ways: (1) return to prison for a new crime, and (2) return to prison either for a new crime or a technical violation. The latter measure is more inclusive of the pathways to which someone can return to prison, but it is a less “pure” measure of an individual’s criminal behavior after prison given that technical violations can often result in someone returning to prison for a behavior that was not necessarily criminal. On the other hand, it is easier to return

someone to prison for a technical parole violation compared to a new crime because the latter requires an indictment and possible trial, so individuals might return to prison after committing a new crime but it appears as a “technical violation” in the records.

Our key independent variable of interest is a measure of whether someone spent time in SRH during their prison stay. To estimate the effect of SRH placement on return to prison, we utilized a propensity score matching analysis, which requires first estimating a propensity score that is the estimated likelihood of spending time in SRH at least once during a prison stay. We then used this propensity score to match individuals who experienced SRH (i.e., the “treatment” for the purpose of this analysis) to those who did not experience SRH during their sentence. The goal of this approach is to achieve “balance” on the measured covariates when comparing the treatment and non-treatment group such that the comparison of the two matched groups is closer to what would result from an experiment in which treatment status was randomly assigned (see, e.g., Apel and Sweeten, 2010).

As with the earlier description of the different profiles for specific RH groups, this analysis excluded IPs who may have served time in ERH at some point during their sentence. The argument for excluding these IPs is to better isolate the unique effect of SRH on prison returns by removing overlap with ERH placements. Also, we did not want to match anyone in the treatment group with someone in the control group who experienced ERH but not SRH.

Matching without replacement was used for the analysis, as it was for the earlier analysis of SRH impacts on subsequent rule violations. In the eligible pool of cases for this analysis, there were 51,848 rule violators placed in SRH during their sentence versus 14,285 rule violators never placed in SRH. Therefore, matching without replacement restricted each group to 14,285 IPs. The balance statistics for the treatment and control groups are presented in table 6.1.1. This table shows the relative success of the matching and also the list of covariates used to estimate the propensity score. Covariates included the following: demographics (sex, age, race, ethnicity, prior education), prior prison sentences, sentence length, offense seriousness, gang activity level (per ODRC), substance abuse risk score (based on the TCU assessment), worst mental health status during sentence (per ODRC), CASAS reading and math scores at intake, status of participation in recovery services programming during incarceration (passed or failed/withdrew), prison industry job, visitation, counts of rule violations and specific types, whether a rule violation was committed within three months of release (to capture a possible “recency effect” of in-prison misconduct on post-release deviance), and the facilities in which individuals were housed throughout their sentences.

## 6.2 Findings—SRH and recidivism

Findings from the matched sample comparisons are presented in table 6.2.1:

- IPs who experience SRH have modestly higher rates of returns to prison for new crimes (27.6 percent compared to 25.7 percent). This is consistent with the idea that SRH placements may have a criminogenic influence, either directly or indirectly, albeit a limited one.
- However, IPs who *do not* experience SRH have slightly higher rates of return to prison when technical violations are included. This change in the effect direction of SRH for this alternative measure of recidivism may be a result of a trend in which non-SRH IPs, if they are returning to prison, are more likely to do so as a result of a technical violation than as the result of committing a new crime.

### 6.3 Analytic data description—ERH and recidivism

We used a similar approach to study ERH and recidivism as above with SRH. The initial sampling frame included everyone from the analysis of SRH as well as IPs who served time in ERH (because they were excluded from the first analysis). We could not isolate the effects of ERH separate from SRH in this analysis because 80 percent of IPs in ERH at some point during their sentence also served time in SRH for other violations. Nonetheless, the control group included IPs who did not serve *either* SRH or ERH during their sentence. Matching without replacement produced a much smaller matched pool relative to the analysis of SRH given the relative rarity of ERH placements.

We first estimated a propensity score that measures the likelihood that an individual is placed in ERH housing and matched on that score. Balance statistics for the treatment and control groups are presented in table 6.3.1, which just as above provides metrics that suggest relative success creating a balanced post-matching sample. The same set of covariates were used in both the SRH and ERH recidivism propensity score estimation.

### 6.4 Findings—ERH and recidivism

Findings from the matched sample comparison are presented in table 6.4.1:

- IPs who experience ERH have higher rates of return to prison for new crimes (35.1 percent compared to 30.9 percent).
- IPs who experience ERH also have higher rates of return to prison when technical violations are included in the measure of recidivism (54.2 percent compared to 50.6 percent).
- The group differences identified here are largely relative to those identified in the SRH analyses, which suggests that ERH placements exert stronger adverse impacts on recidivism likelihoods than having experienced SRH during incarceration. The recidivism rate (for a return for a new crime) for ERH IPs is about 14 percent higher  $((35.1 - 30.9)/30.9)$  than those who did not experience ERH compared to only 7 percent higher for the SRH group compared to the non-SRH group  $((54.2 - 50.6)/50.6)$ .

## **7. An Analysis of Systems-Level Impacts of Extended Restrictive Housing**

This segment of the study takes a systems-level perspective to understand how RH utilization might influence prison facilities at an aggregate level. The focus here is on ERH specifically because the standard policy logic of ERH and supermax practices in prison systems is that placing a prison system's "worst of the worst" in extended solitary confinement and, usually, a specialized, high security facility is justified in large part because of the promise such a practice has for improving overall prison safety and order (Riveland, 1999; Mears and Reisig, 2006; Reiter, 2016; see also, Butler et al., 2013). Our analysis will test this theoretical argument directly by examining how prison system "behavior" in terms of choosing to transfer IPs to ERH housing over time influences future rates of misconduct and violence in prison facilities. Oddly, despite the fact that systems level impacts are fundamentally the central focus of ERH as a policy, empirical studies on ERH effects have largely focused on individual-level impacts and almost no studies have examined facility or systems-level ones (see, however, Briggs et al., 2003; Sundt et al., 2008).

## 7.1 Analytic data description—ERH impacts on prison safety

This analysis is focused on estimating facility-level impacts of ERH transfers on facility rates of misconduct, generally, and violence, specifically. Relevant prisons include 19 male-only medium and minimum security level facilities. Facilities are excluded from this analysis for one of five reasons, including they: 1) contain ERH bed space and so cannot initiate an inter-facility transfer to supermax (i.e., maximum security facilities), 2) did not receive or send people from ERH, 3) were not in operation during all relevant time periods, 4) do not constitute general population facilities (e.g., medical), or 5) house females. We analyze lagged 3-month time intervals throughout the study window to estimate whether changes in ERH utilization in one 3-month interval are associated with changes in infractions in the following 3 months over time. We study these trends in OH between 2007 and 2016, producing 39 time units nested within the 19 facilities (a total of 741 time units).

Longitudinal Poisson models are estimated (in HLM 7.03) and the unit-specific models with robust standard errors are reported. The two dependent variables of interest include general misconduct, which is a count of all infractions in a facility during any particular time unit, and violent misconduct, which is a count of all violent infractions in a facility within a time unit.

The models focus on two key independent variables. The first is a count of ERH “sends,” which is the number of IPs leaving the facility and transferred to an ERH facility within each 3-month time period. This estimate can tell us about the extent to which utilization in any given prison facility leads to any consequences for prison safety and order. However, prison facilities are not only choosing to place individuals in ERH; they are also receiving individuals from ERH who have experienced the conditions there. This downstream consequence of ERH and supermax usage has been largely ignored in the prison literature, at least in conversations about any aggregate-level impacts, but receiving groups of IPs who have experienced the harsh conditions of supermax housing may undermine any potential benefit placing IPs in supermax is intended to have. Thus, our second independent variable is a count of the number of people “received” from ERH in a facility within any given time period.

Our models also control for several theoretically relevant potential confounders including the following: within-facility SRH, which is the number of people sent to SRH in any given time period; the felony-level ratio, or ratio of IPs incarcerated for F1As, F1s, and F2s to IPs incarcerated for F3s, F4, and F5s, which taps into the overall seriousness of an incarcerated population; the median age of the incarcerated population in a facility; the population size of the prison facility; and a time-invariant measure of the security level of the facility (medium = 1, minimum = 0). All level 1 (time-varying) effects are allowed to vary randomly across facilities and are group mean centered. Security level, the only level 2 (time-invariant) effect, is grand mean centered.

## 7.2 Findings—ERH impacts on prison safety

Table 7.2.1 presents the results of the longitudinal growth curve models. Key findings:

- We find no evidence that placement of individuals in ERH housing from minimum and medium security facilities influences behavior—neither general misconduct or violent misconduct specifically—in minimum or medium security facilities. There is a negative association, but it is not statistically significant and does not approach significance at  $p < .05$  (i.e.,  $p > .10$ ).

- Receipt of former supermax IPs (i.e., receipt of IPs from ERH) corresponds with a noticeable but modest increase in both general misconduct ( $p = .053$ ) and violence ( $p = .063$ ) in prison facilities even though neither estimate is significant at  $p < .05$ . Substantively, these estimates translate into an average increase of 9.78 infractions in the following three months for every one person a prison facility receives from ERH, and 2.85 violent infractions in the following three months for every one person received from ERH.

## 8. Research Limitations and Implications

The goal of this project was to respond to calls by scholars (e.g., Shalev, 2009; Mears, 2013; Frost and Monteiro, 2016; Garcia, 2016; Morgan et al., 2016) for more empirical and systematic analysis of RH practices and impacts. Our results provide a comprehensive analysis of how one prison system (Ohio) uses its two main forms of RH and the impacts of RH practices on people and prisons. The results have important implications for research and policy. We discuss these implications below, and we also provide a discussion of important limitations of our analysis.

### 8.1 Implications for research

(\*) *Longitudinal, descriptive analyses of prison systems' use of RH are needed.* There is an argument to be made that discussions about RH and potential policy reforms have led to a focus on estimating RH impacts, skipping over the equally important step of empirical description (e.g., Mills, 1959; Mears and Cochran, 2019). Such description is valuable because it helps to establish an empirical understanding of how and how much prisons use RH in its various forms, which is vital information for understanding both what might influence this variation and what stems from it. The vast bulk of RH research that does exist has focused on identifying individual level “effects” and consequences (e.g., Zinger et al., 2001; Andersen et al., 2003; O’Keefe et al., 2011; Walker et al., 2014; Morgan et al., 2016; Walters, 2016; Chadick et al., 2018; Campagna et al., 2019; Valentine et al., 2019; Gaes & Camp, 2009; Morris, 2016; Lucas & Jones, 2017; Labrecque & Smith, 2019; Labrecque et al., 2020; Butler et al., 2018; Woo et al., 2019; Lovell et al., 2007; Mears & Bales, 2009; Pizarro et al., 2014; Butler et al., 2017; Butler et al., 2020; Salerno & Zgoba, 2020; Wildeman & Andersen, 2020; Zgoba et al., 2020). However, future discussions of RH policy need to be just as informed by an understanding of the prevalence and trends in RH usage, as it needs to be informed by its consequences. Among other things, such an understanding is essential to understanding the scale of any adverse consequences of RH and also for contextualizing RH practices within any particular place or time period.

(\*) *Theoretically-informed research is needed to explain systems-level trends in RH practices.* We hypothesized above that some shifts in RH usage in Ohio are likely the result of formal or informal changes in policies and practices. What else influences variation in how prison systems and facilities “behave” in terms of their RH practices? A host of possibilities exist, including shifts in the composition of prison populations, political changes, cultural and experiential differences in officers across prisons, and more. Understanding these influences is important in its own right, but will also yield relevant findings for policy discussions that seek to inform any warranted reforms.

(\*) *There is a need to identify and focus on the places within prison systems with the most prevalent and potentially problematic patterns of RH usage.* Many lessons can be learned from such investigations. Identifying these sites will likely lead to identification of the places within a

prison system that constitute the most pressing facilities, or types of facilities, for reform. We identified, for example, that medium security facilities in OH were trending in the opposite direction (i.e., up) compared to minimum/low security facilities and statewide trends and that these facilities hold IPs in SRH for longer periods of time. Understanding why this security level stands in contrast to both minimum and maximum security counterparts is an exercise akin to understanding the underlying causes of risk in offender populations. What leads to higher or lower propensities across prison facilities for placing people in RH? What are the underlying forces and factors that shape how and how much prison facilities rely on this practice for maintaining safety and order? By extension, are high or increasing rates of RH usage indicative of a prison that is struggling with maintaining order or a trend in practice that may cause eventual harms and lead to other problems in the future? Empirical studies are needed that can differentiate between the problems that cause relatively high rates of RH usage and those that result from it.

*(\*) Studies need to closely examine how male facilities differ from female facilities in RH usage and impacts.* We observed many similarities but also some key differences in how female facilities use RH. During some periods of time in our study window, we saw that females stayed in SRH placements for longer periods of time. We also found that females are almost never placed in ERH-like settings. Research is needed that can discern the extent to which sex-based differences in how prisons use RH stem mainly from practical considerations (e.g., reduced bed space pressures in female SRH units; the lack of an ERH physical infrastructure) versus philosophical differences in the strategies used to manage male versus female prison facilities. By extension, research is needed that can then more closely consider the relative impacts of these strategies across facility types.

*(\*) Research should focus as much attention (or more?) on shorter and more routine usages of restrictive housing as it does on supermax incarceration and long term solitary confinement, despite the fact that those shorter, within-facility stays do not necessarily include solitary or single-cell confinement.* Restrictive housing, with or without the solitary confinement component (e.g., Rubin and Reiter, 2018), exposes individuals to the most challenging and adverse conditions of incarceration. Any exposure to such conditions may harm individuals and undermine long term correctional goals, including goals of rehabilitation and reducing recidivism, and more generally the goal of operating carceral institutions in ways that are perceived by incarcerated people and society members as procedurally just. Logically, then, research that focuses on the most common and routine ways in which individuals experience RH conditions may be just as if not more valuable for informing policy deliberations as studies of the most extreme versions of it. Our trends analyses illustrate the scope and scale of routine, within-facility, SRH and underscore this point.

*(\*) Future studies of disciplinary segregation and short-term versions of RH that are used in part to improve behavior need to focus on understanding the mechanisms that lead to beneficial impacts on behavior in some instances and null and adverse consequences in others.* Our results suggest that in general, short disciplinary segregation stays result in modest reductions in in-prison misconduct, but that as these stints increase in time, they will exert adverse or criminogenic effects. What causes this heterogeneity in treatment effects? Several mechanisms might explain how RH stays influence individuals' behavior, such as via specific deterrence and

rehabilitation, as well as potentially adverse harms to the perceived legitimacy of the prison system and its use of coercive control.

*(\*) Analyses of RH practices should consider RH usage as a “behavior” of prison systems and, in doing so, conduct theoretically informed analyses of the forces that shape this behavior. We can, for example, conceptualize some forms of RH usage as a type of punitiveness or incapacitation that results from a considerable amount of discretionary decision making. Even decisions to place IPs in ERH, which can involve more formalized definitions of who should be placed in supermaximum and similar housing conditions (e.g., Butler et al. 2013), involve multiple layers of discretion. In some ways, the decisions made within facilities may be influenced by forces analogous to those identified in the court literature surrounding the use of court actor discretion when determining who is deserving of or requires the harshest forms of sentencing. This is an important critical perspective for identifying potential disparities and inequalities in the use of discretion that surrounds RH practices and that is a problem in and of itself and also that may exacerbate other problems and inequities that emerge in the implementation of incarceration.*

*(\*) Research should explore potential disparities in decision making that precedes and potentially influences decisions to place IPs in RH. We found that racial and ethnic disparities in placement in disciplinary segregation were potentially mediated by disproportionalities in infraction types. This suggests several potential possibilities that our analyses could not explore and that should be examined more closely in future studies. One possibility is that African American and Latino IPs engage in more serious infractions and thus disparities in SRH placements are the result of differences in behavior. If studies can confirm this possibility, that would then raise further questions about the underlying factors that lead to these group differences in behavior, such as perceptions of procedural legitimacy or other confounding influences not controlled in this study that link to both race and the conditions and experiences of incarceration. A second possibility is differential enforcement by officers and staff, such that non-white IPs are more likely to be written up for more serious infractions or infractions that are otherwise more likely to result in SRH placement compared to whites. Finally, some staff who determine SRH placements (captains at the time of incident and RIBs at the hearing) might be more inclined to place minorities in segregation for certain types of infractions. All influences, and others, could be operating simultaneously.*

*(\*) Studies are needed that examine a broader range of rehabilitative services provided in prison and the ways in which RH practices might impede such programming. We found strong evidence that placement in SRH/disciplinary segregation during curriculum-based programming impedes IPs’ progress towards completion of that program. Studies are needed that can expand the scope of this analysis and line of questioning to consider a broader range of rehabilitative programs and efforts that may be impeded by RH practices. This is critical when programs specifically designed for an IP’s needs identified at intake are interrupted and subsequently never completed as a result.*

*(\*) There is a critical need in the literature to theorize and measure mechanisms that link RH placements to in-prison and post-release outcomes, especially as it relates to potential violence-increasing effects of ERH usage and also as it relates to recidivism. While we would argue that*

our RH effect estimates are rigorous because of the strong data and matching designs employed, we were not able to measure the precise linkages that would explain the associations between both SRH and ERH with behavior outcomes, such as misconduct and recidivism. Perhaps most pressing is the focus on recidivism, which constitutes a critical outcome in policy discussions, but might be affected by stays in RH of various types through a vast number of potential mechanisms. Studies that can specify, measure, and evaluate more precise causal models that link RH stays to these and other reentry outcomes constitute a critical next step for advancing pressing theory and policy discussions surrounding RH use and impacts.

## 8.2 Implications for policy

*(\*) Establish clear linkages between practices used to manage prison safety and order and the causes of safety and order problems within a prison facility.* RH, especially disciplinary segregation, is common across prison facilities and incarcerated people's experiences, but we find very little evidence that it is useful for improving conditions in facilities and especially not when weighed against some of the long-term and adverse consequences identified here. This suggests that the policy response may not be addressing underlying causes of the problem it seeks to address. Prison systems should prioritize comprehensive evaluation of safety and order problems across its many sources, including organizational characteristics, that may lead to disorder and violence and that also may require a response different than a close reliance on segregated housing units.

*(\*) Prison systems and states should weigh more heavily the potential long term costs to prison safety and order of using RH against any modest, short term improvements to individuals' behavior.* Our analyses found no long term improvements to behavior for individuals or at the prison level that could be linked to RH placements or facility-level usage, respectively. We identified modest, short-term benefits to individuals' behavior in general and for more serious forms of misconduct, but these reductions were particularly small, especially for violence. These modest benefits were also countered by the fact that they are likely limited to only the shortest disciplinary segregation stays, given that more days spent in SRH lead to short-term increases in both violent and non-violent infractions. We also found evidence that monthly receipts of people from ERH conditions are positively associated with both general misconduct and violence specifically within a facility. Although there may be other ancillary and short term benefits of RH usage beyond the scope of our analyses, such as via general deterrence mechanisms or by providing correctional staff temporary relief from seriously problematic behavior and disorder, the analyses here do focus on many of the primary and largely implicit assumptions of benefits that RH policies are meant to provide. States should consider more closely other mechanisms that might be used to reduce reliance on RH that might avoid some of the potential individual and systems harms indicated by our analyses.

*(\*) Future policy decisions and reforms surrounding RH practices need to also consider the harms and hindrances RH can pose to the rehabilitative goals of the corrections system.* Our analysis of SRH effects on recovery service programming in OH finds that SRH placements disrupt curriculum-based programming. Program interruptions are potentially damaging to IPs targeted with the specific needs addressed by these re-entry approved programs, especially if these programs are never subsequently completed before release from prison. This suggests that RH usage can come at an additional cost that is not typically part of RH policy deliberations or

research. We also found that IP groups especially in need of rehabilitative programming and that are especially high risk for in-prison and reentry problems (e.g., IPs with mental health problems) are more likely to be placed in SRH, and that poorer mental health corresponds with more stays in SRH and ERH over the course of a prison sentence. The longitudinal analysis of mental health and RH also suggest that poor mental health could be exacerbated by SRH placements. Thus, a proper cost-effectiveness evaluation surrounding RH usage would consider not only short and long term implications for misconduct and aggregate prison safety, but also any detrimental impacts RH practices might impose on the other correctional goals that fall under the purview of the prison system.

*(\*) Prison facilities should closely monitor potentially problematic points of discretion in the day-to-day operations to manage prison safety and order.* To our knowledge, few self-assessments of such points of discretion in prison operations have occurred (e.g., decisions regarding citations for rule violations, segregation at the time of the incident, and segregation as punishment after guilt is established). In the context of RH usage, which decision points are the most contentious? Where are inequalities and unfairnesses most likely to appear? What are the potential causes of them? Identifying and addressing any problems identified via such assessments is likely to have important impacts in terms of informing future policy changes and improving the fairness and effectiveness of prisons.

*(\*) Prison systems need to systematically evaluate alternative responses to people with mental illness that fail to comply with prison rules. At the same time, policymakers and court actors should reevaluate sentencing practices that lead to “warehousing” these individuals in prison systems without adequate services for their needs.* We found strong evidence that an IP’s mental health is tied to the odds of placement in SRH early in one’s sentence, and that poorer mental health coincides with more placements in both SRH and ERH throughout a sentence. This is consistent with a trend identified in prior research that various forms of RH serve as temporary and largely ineffective solutions to “treating” mental illness among correctional populations (see earlier discussion and also Shames et al., 2015). Prison systems should evaluate the underlying factors that lead to such a trend, including the possibility that mental health treatment resources in carceral institutions are insufficient and also that state courts disproportionately place people with serious mental illness in prisons and jails in response to criminal offending rather than more treatment-based alternatives.

*(\*) Prison systems should reevaluate the role and utility of ERH.* We found some limited evidence that use of ERH may be undermining long term goals of prison systems’ continued use of supermax and supermax-like housing, by way of violence-increasing impacts that occur when prison facilities receive IPs back from ERH stays. In many ways, this impact is a logical one. The harsh conditions of extended RH stays of any kind are likely to exert adverse consequences on the subgroup of the prison population that experiences it, either directly as a result of the isolation or indirectly via restricted access to potentially necessary programs, privileges, and amenities. It flows logically, then, that eventually when members of this subpopulation return from ERH, the underlying factors and characteristics that caused the behavior that led to the prison system seeking their transfer to ERH are likely to be exacerbated, not improved. (This situation parallels the reentry of maximum security prisoners back into society, where well over half subsequently return to prison for new crimes.) Our estimates suggest that this is an

aggravating effect that is occurring at an aggregate level and that it exerts a stronger adverse influence on prison system safety than any benefits that might emerge from transferring individuals to ERH in the first place (i.e, we found no reductions in rule violations rates with supermax “sends” and yet an increase in general infractions and violence specifically with supermax “receipts”). This largely one-sided tradeoff is an important phenomenon that should be included in any cost-effectiveness evaluation centered on supermax and extended solitary confinement alongside the numerous other potential costs and harms identified in the literature.

### 8.3 Key limitations of the project

Any implications that extend from this project should be considered with appropriate caution and with the study’s limitations in mind. The most critical limitations include the following:

*(\*) This analysis is focused on one state over one 10-year period.* All of these results stem from empirical analyses of one state’s prison system from one period of time. Although we do think that the time period is long and recent enough so that the results should have substantive relevance for quite some time, and we were able to follow over 80 percent of our sample through their entire sentences, any characteristics of OH’s prison system that make it unique and select during this time period will undermine the ability of these results to generalize to other places and time periods.

*(\*) The analyses do not include, nor are they augmented by, perspectives and insights of ODRC correctional officers and staff or incarcerated people.* Our results stem from analysis of longitudinal administrative records. Although this provides many strengths, including the fact that many of the datapoints are systematically tracked and collected, which avoids many problems that would otherwise have been imposed by missing data, it also means that our results are limited to what we can observe in the administrative records. This is a somewhat ambiguous limitation but the larger point is that the interpretations and implications of these results could only be improved by systematic inclusion of data and analyses from, say, qualitative and survey data from those who work in and those who reside in OH prison facilities.

*(\*) Our measure of mental illness is limited.* Mental illness is a critical factor and point of focus in the RH literature. Our measure of mental health was limited in that it lacked nuance and that it was based only on official designations made by ODRC. Although the measure sufficed in terms of identifying broadly those with the most serious mental health conditions in OH prisons and for estimating how serious mental illness influences and is influenced by RH placements, some extant studies discussed earlier in the report have utilized more detailed mental health measures. We encourage readers who are primarily interested in mental health impacts to assess whether the detail utilized in measuring mental health status and diagnoses in prior studies is relevant for the questions they are trying to ask or if the measures employed here are sufficient.

*(\*) Results are subject to bias from unmeasured covariates.* When possible, we utilized matching designs in efforts to simulate results that might be obtained via experimental designs in a research context in which randomization of treatment assignment is impossible (i.e., randomly assigning IPs to SRH and ERH). Our data have many strengths in terms of comprehensiveness and detail, but even still, it is critical to note that the matching designs are still subject to omitted variable bias.

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## 10. Tables and Figures

Figure 3.2.1 Monthly counts and proportions of individuals place in SRH

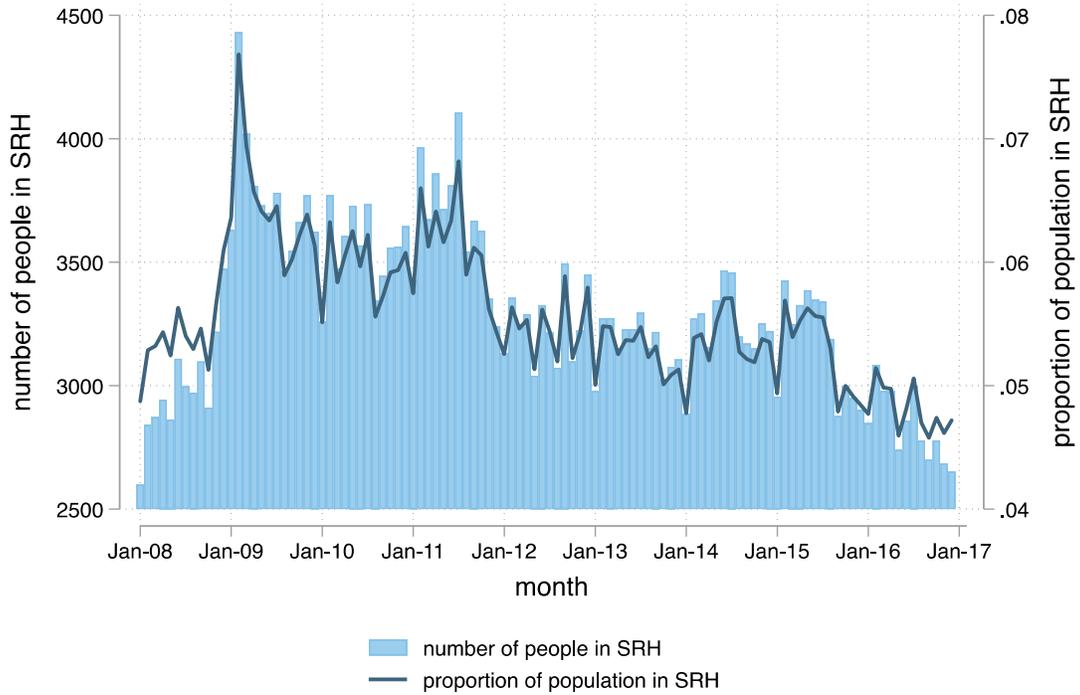


Figure 3.2.2 Average time served in SRH (in days) per placement over proportions of individuals placed in SRH

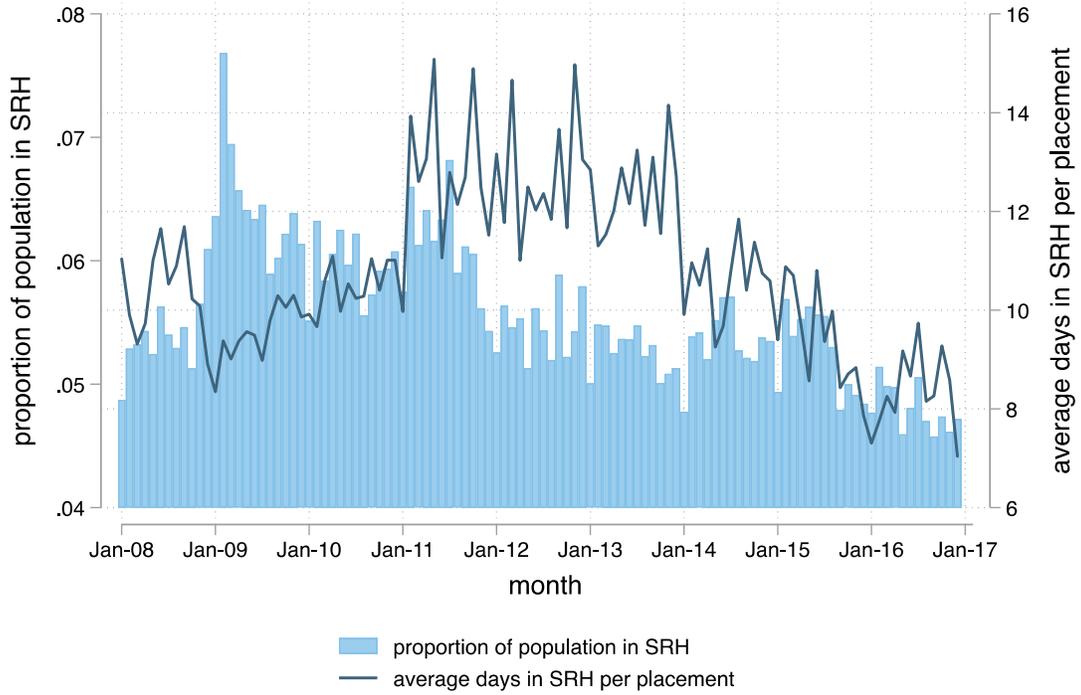


Figure 3.2.3 Average proportions placed in SRH, by male and female facility type

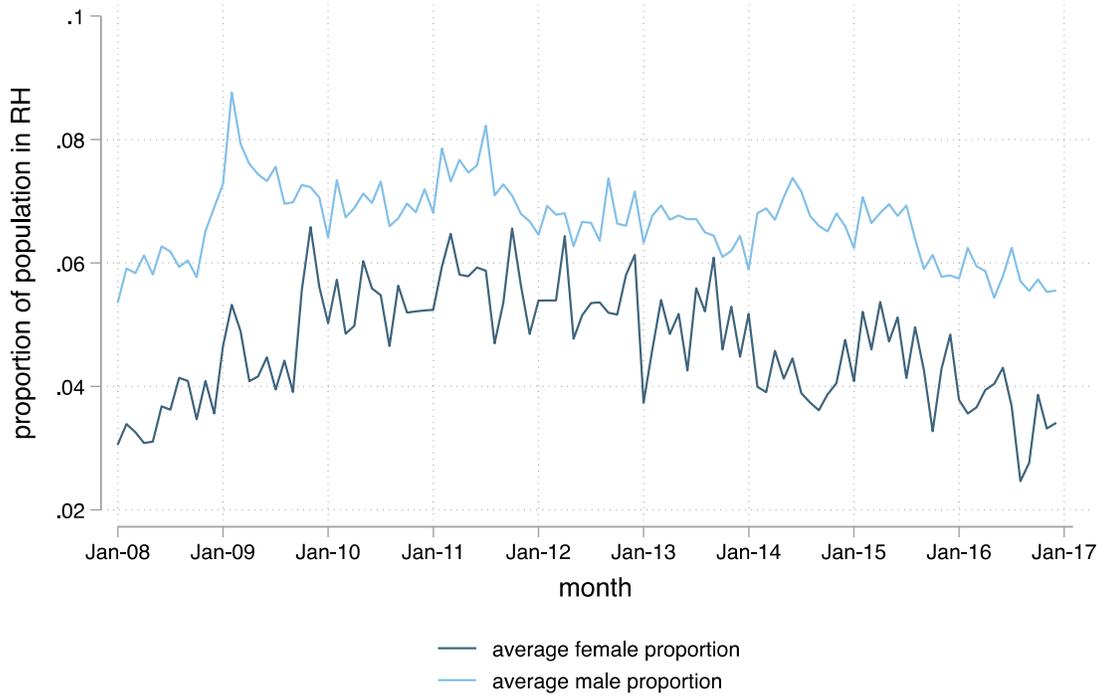


Figure 3.2.4 Average time served in SRH (in days) per placement, by male and female facility type

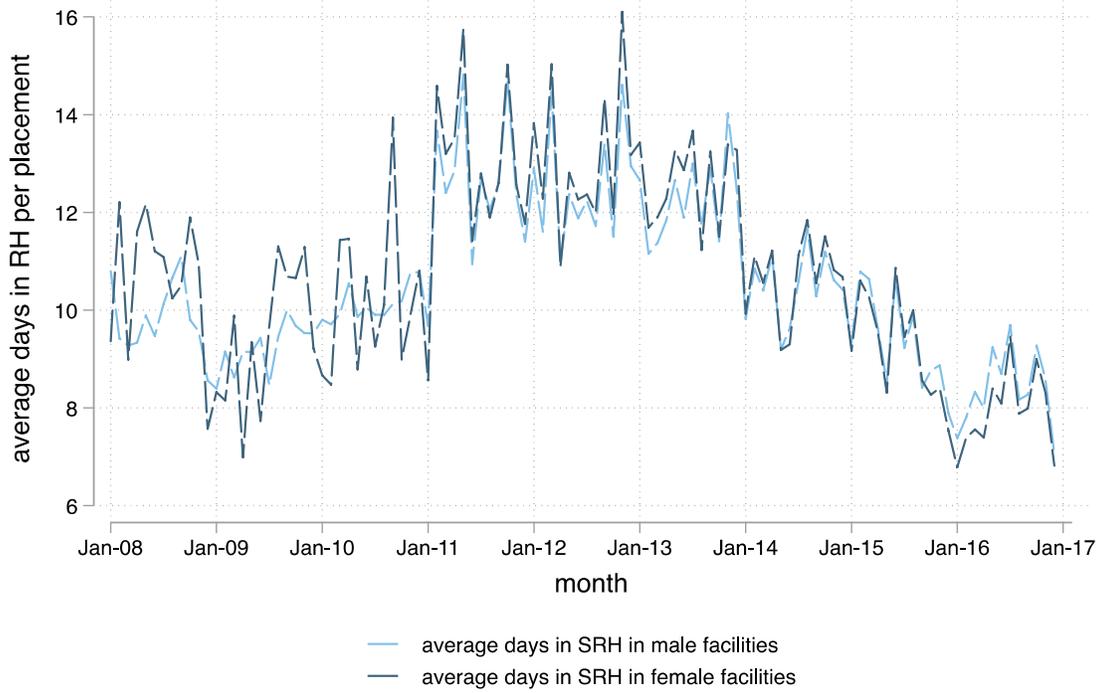


Figure 3.2.5 Average proportions placed in SRH, by security level

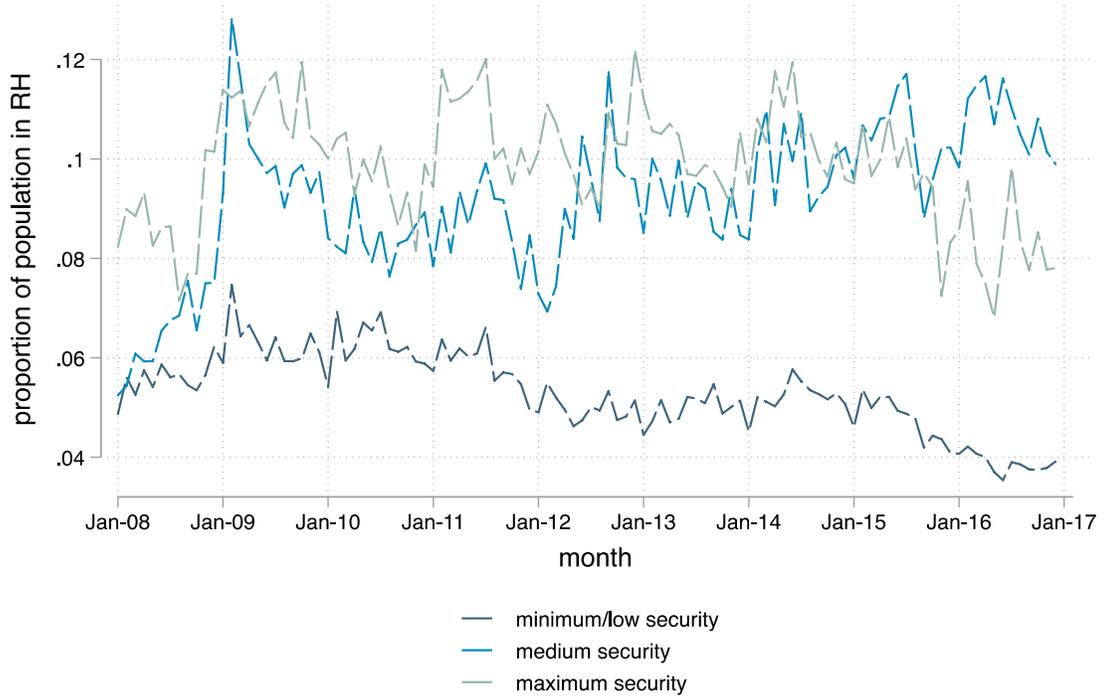


Figure 3.2.6 Average time served in SRH (in days) per placement, by security level

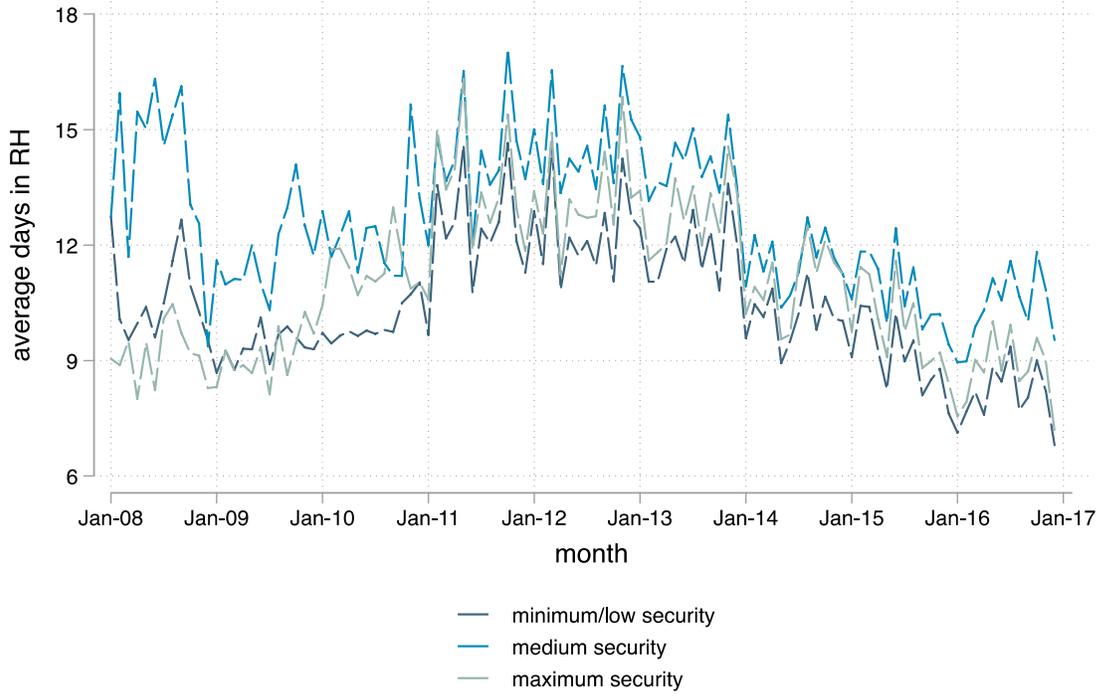


Figure 3.3.1 Placements in ERH for all facilities and separated by security level

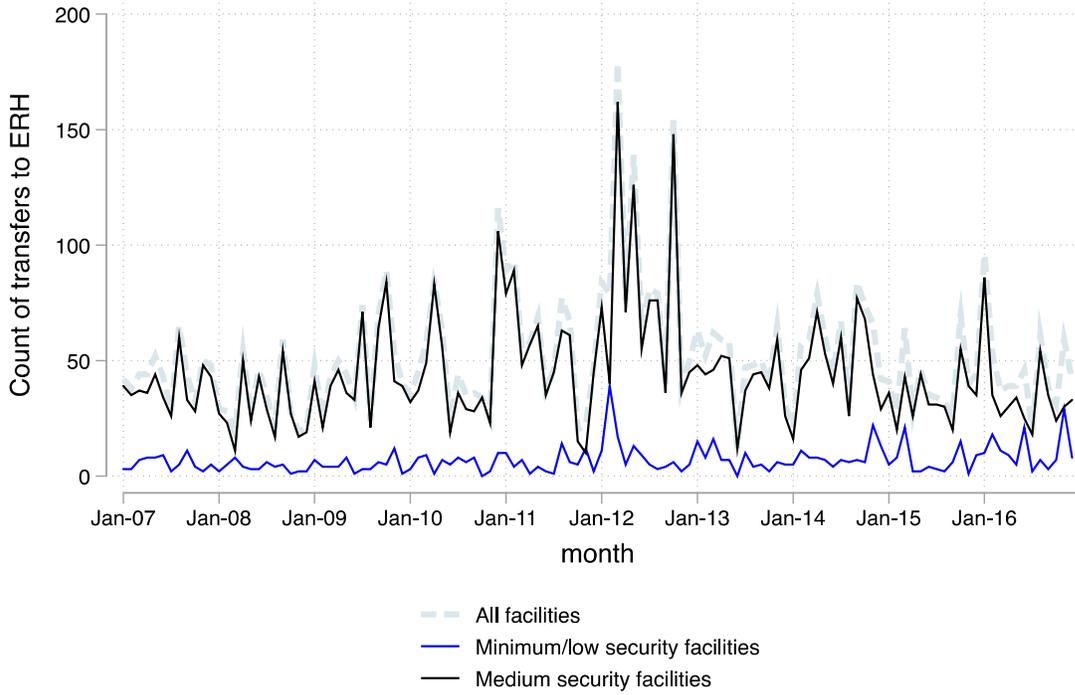


Table 4.2.1 Profiles of IPs (a) never placed in RH during sentence, (b) ever placed in SRH, (c) placed in SRH 2+ times, (d) ever placed in ERH, and (e) placed in ERH 2+ times x

Measures	no SRH or ERH		SRH		SRH 2+		ERH		ERH 2+	
	$\bar{x}$	<i>s</i>	$\bar{x}$	<i>s</i>	$\bar{x}$	<i>s</i>	$\bar{x}$	<i>s</i>	$\bar{x}$	<i>s</i>
Male	.83	.376	.91	.293	.93	.263	1.00	.018	1.00	.022
Age (years)	34.1	10.3	29.5	9.13	27.8	8.56	26.9	8.02	25.6	7.38
Race and ethnicity										
Non-Latino African American	.38	.486	.46	.498	.49	.500	.53	.499	.56	.497
Latino	.01	.101	.01	.104	.01	.104	.01	.094	.01	.093
Latino – white	.01	.092	.01	.097	.01	.104	.02	.122	.02	.126
Latino – black	.001	.031	.001	.034	.00	.037	.0033	.057	.0028	.053
Non-Latino white (reference)	.60	.490	.52	.500	.51	.500	.44	.496	.41	.491
High school degree prior to admission	.20	.397	.17	.376	.16	.365	.14	.351	.12	.321
# prior prison sentences	1.13	1.728	1.15	1.661	1.09	1.591	.98	1.384	1.06	1.420
Most serious felony committed for										
Felony 1A	.0001	.009	.0001	.007	.00004	.006	.0007	.026	.0009	.030
Felony 1	.02	.145	.08	.273	.12	.323	.18	.026	.24	.426
Felony 2	.07	.262	.19	.394	.26	.437	.26	.386	.31	.464
Felony 3	.25	.431	.33	.471	.36	.481	.29	.441	.29	.455
Felony 4	.28	.449	.21	.408	.16	.371	.14	.454	.10	.300
Felony 5 (reference)	.38	.485	.18	.386	.10	.293	.12	.345	.06	.228
Sentence length (months; 360 cap)	14.3	16.7	27.3	23.0	34.7	23.8	39.6	29.8	47.6	29.4
Gang activity										
Disruptive gang member	.0005	.022	.02	.137	.03	.179	.16	.362	.19	.395
Active gang member	.002	.043	.03	.178	.05	.225	.06	.246	.08	.267
Passive gang member	.01	.120	.17	.372	.22	.417	.22	.413	.27	.445
Substance abuse risk score (TCU)	4.70	2.65	4.71	2.82	4.69	2.92	4.60	3.01	4.40	3.05
CASAS score (reading and math)	460.7	44.8	459.0	44.4	458.5	46.9	457.3	45.9	456.4	45.9
Worst mental health: psychotherapy track	.10	.301	.13	.340	.14	.320	.14	.348	.17	.372
Worst mental health: chronic care track	.09	.281	.14	.351	.17	.323	.14	.347	.17	.373

Table 4.2.1 (continued)

Prison industry job during sentence	.01	.111	.02	.149	.03	.165	.03	.156	.03	.172
Successfully completed GED program	.004	.060	.01	.073	.01	.076	.01	.077	.01	.080
# visits during sentence (150 cap)	5.94	17.755	11.35	26.749	13.77	29.649	14.39	30.386	16.75	32.812
No recovery service participation	.92	.270	.89	.313	.87	.333	.85	.355	.87	.336
Total rule violations during sentence	.12	.384	2.02	1.956	3.21	2.213	4.21	3.867	5.28	3.793
Total violent offenses during sentence	.03	.188	.80	1.118	1.28	1.380	2.30	2.626	2.95	2.738
Total drug offenses during sentence	.02	.165	.34	.733	.55	.929	.65	1.144	.82	1.249
<i>N</i>	126,158		54,676		25,561		3,038		2,156	

Table 4.2.2 Binary logistic regression models of placement odds for SRH and ERH (N = 183,872)

Variables	SRH		SRH 2+		ERH		ERH 2+	
	<i>e<sup>b</sup></i>	<i>s.e.b</i>	<i>e<sup>b</sup></i>	<i>s.e.b</i>	<i>e<sup>b</sup></i>	<i>s.e.b</i>	<i>e<sup>b</sup></i>	<i>s.e.b</i>
Constant	.81		.27		.04		.02	
Male	1.45**	.018	1.47**	.028	----	----	----	----
Age (years)	.95**	.001	.94**	.001	.95**	.003	.93**	.004
Race and ethnicity								
Non-Latino African American	1.13**	.013	1.13**	.017	1.17**	.042	1.07	.051
Latino	.98	.056	.91	.075	.78	.203	.73	.243
Latino – white	.92	.061	1.02	.077	1.34	.163	1.32	.191
Latino – black	.86	.175	.996	.218	2.24*	.354	1.74	.454
High school degree prior to admission	.88**	.015	.81**	.021	.87*	.055	.74**	.071
# prior prison sentences	1.10**	.004	1.13**	.006	1.07**	.015	1.21**	.017
Most serious felony committed for								
Felony 1A	.001**	.802	.0004**	1.11	----	----	----	----
Felony 1	1.89**	.034	3.26**	.041	3.08**	.080	7.41**	.112
Felony 2	2.15**	.023	3.78**	.031	2.28**	.069	5.24**	.105
Felony 3	1.74**	.017	2.95**	.026	1.58**	.064	3.26**	.103
Felony 4	1.31**	.016	1.80**	.027	1.12	.072	1.78**	.116
Sentence length (months; 360 cap)	1.02**	.0004	1.03**	.0004	1.01**	.001	1.02**	.001
Gang activity								
Disruptive gang member	2.38**	.057	3.56**	.056	18.4**	.066	21.2**	.073
Active gang member	6.42**	.057	6.47**	.049	4.43**	.083	4.99**	.092
Passive gang member	6.32**	.025	4.34**	.023	3.09**	.051	3.67**	.058
Substance abuse risk score (TCU)	1.01**	.002	1.02**	.003	1.02*	.007	.99	.008
CASAS score (reading and math)	.998**	.0002	.998**	.0002	.998**	.0004	.998**	.001
Mental health intake: psychotherapy track	1.62**	.019	1.70**	.025	1.32**	.064	1.74**	.073
Mental health intake: chronic care track	2.05**	.020	2.25**	.026	1.32**	.068	1.77**	.078
Nagelkerke <i>R</i> <sup>2</sup>	.26		.31		.18		.27	

\* *p* < .01, \*\* *p* < .001

Table 4.3.1 Descriptive statistics for analysis of race/ethnic disparities in SRH

Variable	$\bar{x}$	s
Level-1: Incarcerated persons ( $N_1 = 81,673$ )		
<i>Outcomes</i>		
Pre-hearing SRH for first offense	.45	.50
Post-hearing SRH for first offense	.34	.47
<i>Independent Variables</i>		
Race and ethnicity		
Race/ethnicity—Non-Latino African American	.47	.50
Latino	.02	.15
Non-Latino white (reference)	.51	.50
Male	.92	.27
Age (range: 15 - 88 years)	29.93	9.26
# prior prison sentences (range: 0 - 19)	1.12	1.62
Most serious felony committed for		
Felony 1A	.02	.15
Felony 1	.15	.36
Felony 2	.21	.41
Felony 3	.28	.45
Felony 4	.18	.38
Felony 5 (reference)	.16	.37
Sentence length (range: 0 – 360 months [capped])	45.42	59.07
Time served by first offense (range: 0 - 114 weeks)	8.13	10.56
Texas Christian University Drug Screen II score (range: 0 - 11)	4.63	3.08
Job in prison industry at time of first offense	.03	.18
Gang activity		
Disruptive gang member	.03	.17
Active gang member	.04	.20
Passive gang member	.18	.39
Non-gang member (reference)	.75	.43
Year of offense		
2007 (reference)	.06	.23
2008	.10	.30
2009	.11	.32
2010	.12	.32
2011	.11	.32
2012	.11	.31
2013	.10	.30
2014	.10	.31
2015	.10	.30
2016	.10	.29
Rule infractions		
Violent		

Table 4.3.1 (Continued.)

Death	.0001	.01
Hostage	.0001	.01
Aggravated harm	.004	.06
Harm	.033	.18
Harm with weapon	.002	.05
Threw body fluid on someone	.002	.05
Threw other fluid on someone	.004	.06
Threatened bodily harm	.048	.21
Fighting	.277	.45
Physical resistance to a direct order	.042	.20
Grabbing someone without consent	.006	.07
Arson	.001	.03
Sex		
Non-consensual sexual conduct	.0002	.01
Non-consensual sexual contact	.0005	.02
Consensual sexual conduct	.008	.09
Seductive or obscene acts	.015	.12
Weapons		
Possession of weapon	.010	.10
Procuring a weapon	.0001	.01
Possession of plans to make a weapon	.0001	.01
Property		
Theft of property or fraud	.029	.17
Vandalism	.011	.10
Possession of another's property	.007	.08
Possession of contraband	.087	.28
Threatened harm to property	.0004	.02
Extortion	.005	.07
Drugs		
Possess, manufacture, consume drugs	.121	.33
Procuring unauthorized drugs	.010	.10
Possession drug paraphernalia	.001	.03
Misuse of authorized medication	.013	.11
Rioting and other rebellious activities		
Rioting	.0002	.01
Group demonstration or work stoppage	.001	.03
Unauthorized group activities	.017	.13
Creating a disturbance	.025	.16
Outside contact		
Conducting business with outsiders	.002	.04
Unauthorized use of telephone/ mail/visits	.011	.10
Use of phone or mail to harass	.001	.04
Use of phone or mail for criminal activity	.004	.06

Table 4.3.1 (Continued.)

Escape-related		
Escape from facility grounds	.0001	.01
Removing physical restraints	.0002	.02
Attempted escape	.0004	.02
Tampering with locks	.003	.05
Possession of escape materials	.001	.02
False documents to affect release	.0002	.01
Tattooing		
Self-mutilation/tattooing	.062	.24
Possession tattooing devices	.020	.14
Other deception		
False information provided to staff	.021	.14
Forged documents	.002	.04
Illegal transactions	.017	.13
Possession of money	.001	.03
Insubordination		
Disobedience to a direct order	.156	.36
Refusal to accept an assignment	.053	.22
Refusal to cooperate with drug testing	.004	.06
Out of place	.079	.27
Other		
Personal relationship with an employee	.009	.10
Gambling	.002	.05
Tampering with fire safety equipment	.0003	.02
Disrespect to staff, visitor, or other incarcerated person	.103	.30
Refusal to carry out work	.017	.13
Other violation (reference)	.041	.20
Level-2: Facilities ( $N_2 = 33$ )		
<i>Independent Variables</i>		
Design capacity of facility (range: 210 - 1,507 IPs)	894.70	430.97
Proportion of population in maximum security (range: 0.00 - 0.85)	.044	.17
Officers troubled by rule enforcement issues (range of facility mean: -.41 - .40)	.02	.19
Officers' greater reliance on legitimate power (range of facility mean: 2.5 - 3.2)	2.88	.15
Facility for women	.091	.29

Level-1 measures dummy coded (0 = no; 1 = yes) except time served (in weeks), # prior prison sentences, age (in years), TCU drug screen score, and sentence length (in months). Level-2 measures are continuous except "Facility for women" (0 = no; 1 = yes).

Table 4.4.1 Level-1 multilevel logit models of pre-hearing SRH for a first offense (odds ratios [ $e^b$ ] reported;  $N_1 = 81,673$ )

Variable	Model 1	Model 2	Model 3
Intercept	.90	.85	.83
Race/ethnicity			
Non-Latino African American	1.11**	1.07*	.94*
Latino	1.12**	1.07	1.04
Male	----	.48**	.60***
Age (years)	----	1.0008	.998
# prior prison sentences	----	1.01*	1.01
Most serious felony committed for			
Felony 1A	----	1.18	1.16*
Felony 1	----	1.29***	1.27**
Felony 2	----	1.28***	1.27**
Felony 3	----	1.21***	1.20**
Felony 4	----	1.12***	1.10**
Sentence length (months)	----	1.001***	1.001***
Time served by first offense (weeks)	----	.99***	.996***
Texas Christian University Drug Screen II score	----	.99*	1.0009
Job in prison industry at time of first offense	----	1.002	.99
Gang activity			
Disruptive gang member	----	1.02	.98
Active gang member	----	.96	1.04
Passive gang member	----	1.04	1.06**
Year of offense			
2008	----	2.41***	2.44***
2009	----	2.39***	2.33***
2010	----	2.06***	2.10***
2011	----	2.34***	2.47***
2012	----	2.24***	2.48***
2013	----	2.42***	2.58***
2014	----	2.11***	2.23***
2015	----	1.91***	1.96***
2016	----	2.21***	2.24***
Rule infractions			
Violent			
Death	----	----	2.06
Hostage	----	----	.66
Aggravated harm	----	----	1.30*
Harm	----	----	1.23***
Harm with weapon	----	----	1.16
Threw body fluid on someone	----	----	1.47*

Table 4.4.1 (continued)

Threw other fluid on someone	----	----	1.12
Threatened bodily harm	----	----	1.21 <sup>***</sup>
Fighting	----	----	1.84 <sup>***</sup>
Physical resistance to a direct order	----	----	1.33 <sup>***</sup>
Grabbing someone without consent	----	----	1.35 <sup>**</sup>
Arson	----	----	.69
Sex			
Non-consensual sexual conduct	----	----	.63
Non-consensual sexual contact	----	----	1.88
Consensual sexual conduct	----	----	1.27 <sup>**</sup>
Seductive or obscene acts	----	----	1.14 <sup>*</sup>
Weapons			
Possession of weapon	----	----	1.13
Procuring a weapon	----	----	1.03
Possession of plans to make a weapon	----	----	2.16
Property			
Theft of property or fraud	----	----	1.35 <sup>***</sup>
Vandalism	----	----	1.16 <sup>*</sup>
Possession of another's property	----	----	.92
Possession of contraband	----	----	.92 <sup>*</sup>
Threatened harm to property	----	----	1.18
Extortion	----	----	1.17
Drugs			
Possess, manufacture, consume drugs	----	----	.76 <sup>***</sup>
Procuring unauthorized drugs	----	----	1.41 <sup>***</sup>
Possession drug paraphernalia	----	----	1.44
Misuse of authorized medication	----	----	.79 <sup>***</sup>
Rioting and other rebellious activities			
Rioting	----	----	1.53
Group demonstration or work stoppage	----	----	.88
Unauthorized group activities	----	----	.73 <sup>***</sup>
Creating a disturbance	----	----	1.10
Outside contact			
Conducting business with outsiders	----	----	.71
Unauthorized use of telephone/mail/visits	----	----	.65 <sup>***</sup>
Use of phone or mail to harass	----	----	.71
Use of phone or mail for criminal activity	----	----	.72 <sup>**</sup>
Escape-related			
Escape from facility grounds	----	----	4.47 <sup>*</sup>
Removing physical restraints	----	----	1.19
Attempted escape	----	----	.73
Tampering with locks	----	----	1.12
Possession of escape materials	----	----	1.49
False documents to affect release	----	----	1.14

Table 4.4.1 (continued)

Tattooing			
Self-mutilation/tattooing	----	----	.24***
Possession tattooing devices	----	----	.63***
Other deception			
False information provided to staff	----	----	1.25***
Forged documents	----	----	.67*
Illegal transactions	----	----	1.15*
Possession of money	----	----	1.18
Insubordination			
Disobedience to a direct order	----	----	1.23***
Refusal to accept an assignment	----	----	1.21***
Refusal to cooperate with drug testing	----	----	.94
Out of place	----	----	1.004
Other			
Personal relationship with an employee	----	----	1.18*
Gambling	----	----	1.11
Tampering with fire safety equipment	----	----	.95
Disrespect to staff, visitor, or other incarcerate	----	----	1.21***
Refusal to carry out work	----	----	.97

$e^b$  = antilog (natural) of unstandardized level-1 regression coefficient ( $b$ ).

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  (two-tailed)

Table 4.4.2 Level-2 intercepts and slopes as outcomes for pre-hearing SRH ( $N_2 = 33$ )

Model	Intercepts as outcome		Coefficients for non-Latino African American as outcome	
	$\gamma$	$SE_\gamma$	$\gamma$	$SE_\gamma$
Design capacity of facility	-.00020	.00014	.00005	.00009
Proportion maximum security	.52**	.21	.14	.34
Officers troubled by rule enforcement issues	.64*	.38	.36**	.14
Officers' greater reliance on legitimate power	-.16	.41	-.12	.23
Facility for women	.35***	.11	-.05	.08

$\gamma$  = unstandardized level-2 regression coefficient;  $SE_\gamma$  = standard error of  $\gamma$ .

\*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$  (two-tailed)

Table 4.4.3 Level-1 logit models of post-hearing SRH for a first offense (odds ratios [ $e^b$ ] reported;  $N_I = 81,673$ )

Variable	Model 1	Model 2	Model 3
Intercept	.47	.45	.43
Race/ethnicity			
Non-Latino African American	1.14***	1.12***	1.00
Latino	1.19*	1.17*	1.11
Male	----	1.10	1.36**
Age (years)	----	1.002	.999
# prior prison sentences	----	1.008	1.001
Most serious felony committed for			
Felony 1A	----	1.05	1.03
Felony 1	----	1.11**	1.08*
Felony 2	----	1.18***	1.16***
Felony 3	----	1.19***	1.17***
Felony 4	----	1.09***	1.08**
Sentence length (months)	----	1.0006***	1.0004
Time served by first offense (weeks)	----	.998	1.00
Texas Christian University Drug Screen II score	----	.995	1.002
Job in prison industry at time of first offense	----	.97	.96
Gang activity			
Disruptive gang member	----	1.25**	1.11*
Active gang member	----	1.02	1.05
Passive gang member	----	1.02	1.03
Year of offense			
2008	----	3.00***	3.20***
2009	----	3.25***	3.25***
2010	----	2.77***	2.84***
2011	----	2.93***	3.15***
2012	----	1.95***	2.11***
2013	----	1.67*	1.73***
2014	----	1.81**	1.83***
2015	----	2.15**	2.14***
2016	----	1.25	1.16***
Pre-hearing SRH	----	.49***	.39***
Rule infractions			
Violent			
Death	----	----	3.29
Hostage	----	----	2.16
Aggravated harm	----	----	1.87***
Harm	----	----	2.93***
Harm with weapon	----	----	2.79***
Threw body fluid on someone	----	----	1.47*
Threw other fluid on someone	----	----	1.41**
Threatened bodily harm	----	----	1.51***

Table 4.4.3 (continued)

Fighting	----	----	1.92***
Physical resistance to a direct order	----	----	1.77***
Grabbing someone without consent	----	----	1.66***
Arson	----	----	1.08
Sex			
Non-consensual sexual conduct	----	----	.85
Non-consensual sexual contact	----	----	2.06*
Consensual sexual conduct	----	----	1.37***
Seductive or obscene acts	----	----	1.46***
Weapons			
Possession of weapon	----	----	4.07***
Procuring a weapon	----	----	2.10
Possession of plans to make a weapon	----	----	3.48
Property			
Theft of property or fraud	----	----	1.39***
Vandalism	----	----	1.03
Possession of another's property	----	----	.77**
Possession of contraband	----	----	1.15***
Threatened harm to property	----	----	.72
Extortion	----	----	1.54***
Drugs			
Possess, manufacture, consume drugs	----	----	1.08*
Procuring unauthorized drugs	----	----	2.80***
Possession drug paraphernalia	----	----	2.14***
Misuse of authorized medication	----	----	.68***
Rioting and other rebellious activities			
Rioting	----	----	.68
Group demonstration or work stoppage	----	----	2.61***
Unauthorized group activities	----	----	1.02
Creating a disturbance	----	----	1.34***
Outside contact			
Conducting business with outsiders	----	----	1.17
Unauthorized use of telephone/mail/visits	----	----	.72***
Use of phone or mail to harass	----	----	1.66*
Use of phone or mail for criminal activity	----	----	1.29*
Escape-related			
Escape from facility grounds	----	----	12.83***
Removing physical restraints	----	----	1.36
Attempted escape	----	----	1.32
Tampering with locks	----	----	1.51**
Possession of escape materials	----	----	2.37**
False documents to affect release	----	----	3.04*

Table 4.4.3 (continued)

Tattooing			
Self-mutilation/tattooing	----	----	.21 <sup>***</sup>
Possession tattooing devices	----	----	.46 <sup>***</sup>
Other deception			
False information provided to staff	----	----	1.07
Forged documents	----	----	.79
Illegal transactions	----	----	1.08
Possession of money	----	----	2.21 <sup>**</sup>
Insubordination			
Disobedience to a direct order	----	----	1.15 <sup>***</sup>
Refusal to accept an assignment	----	----	1.68 <sup>***</sup>
Refusal to cooperate with drug testing	----	----	1.16
Out of place	----	----	.992
Other			
Personal relationship with an employee	----	----	1.93 <sup>***</sup>
Gambling	----	----	.92
Tampering with fire safety equipment	----	----	1.34
Disrespect to staff, visitor, or other incarcerate	----	----	1.24 <sup>***</sup>
Refusal to carry out work	----	----	.90

$e^b$  = antilog (natural) of unstandardized level-1 regression coefficient ( $b$ ).

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  (two-tailed)

Table 4.4.4 Level-1 intercepts and slopes as outcomes for post-hearing SRH ( $N_2 = 33$ )

Model	Intercepts as outcome		Coefficients for non-Latino African American as outcome	
	$\gamma$	$SE_\gamma$	$\gamma$	$SE_\gamma$
Design capacity of facility	.00099***	.00031	.00018**	.00007
Proportion maximum security	1.70***	.57	-.48***	.08
Officers troubled by rule enforcement issues	.23	.59	-.25	.19
Officers' greater reliance on legitimate power	1.02	.82	-.57**	.21
Facility for women	.45**	.19	.03	.10

$\gamma$  = unstandardized level-2 regression coefficient;  $SE_\gamma$  = standard error of  $\gamma$ .

\*  $p < .10$ , \*\*  $p < .05$ , \*\*\*  $p < .01$  (two-tailed)

Table 5.1.1 Descriptive statistics comparing treatment/SRH group (N = 10,336) to control/non-SRH group (N = 4,675) for analysis of SRH impacts on misconduct

Measures	SRH		no SRH		% Bias	t-value
	$\bar{x}$	s	$\bar{x}$	s		
# days in RH for first offense	15.7	20.7	----	----		----
Type of infraction						
Aggravated harm	.003	.053	.002	.044	1.8	.99
Harm	.032	.176	.014	.116	12.2	6.45**
Threw body fluid on someone	.002	.045	.002	.039	1.3	.70
Threw other fluid on someone	.004	.063	.003	.058	0.9	.50
Threatened bodily harm	.050	.217	.041	.199	4.1	2.26
Threatened harm to property	.0005	.022	.0006	.025	-0.7	-.39
Extortion	.003	.058	.003	.053	1.1	.61
Consensual sexual conduct	.011	.103	.009	.092	2.2	1.24
Seductive or obscene acts	.015	.121	.0145	.115	1.1	.63
Group demonstration/work stoppage	.001	.035	.0002	.015	3.9	1.94
Unauthorized group activities	.007	.085	.017	.130	-9.0	-5.54**
Creating a disturbance	.031	.172	.016	.127	9.4	5.04**
Fighting	.357	.479	.174	.380	42.3	23.0**
Physical resistance to a direct order	.048	.214	.027	.161	11.2	6.06**
Disobedience to a direct order	.187	.390	.148	.355	10.3	5.76**
Refusal to carry out work	.018	.133	.020	.138	-1.0	-.58
Refusal to accept an assignment	.035	.184	.015	.122	12.8	6.78**
Personal relations with employee	.009	.093	.009	.092	0.2	.09
Grabbing someone w/o consent	.008	.091	.004	.065	5.1	2.74*
Disrespect	.113	.317	.102	.303	3.5	1.99
False information provided to staff	.027	.163	.024	.153	2.2	1.21
Forged documents	.002	.043	.003	.057	-2.7	-1.64
Attempted escape	.0004	.020	.0002	.015	1.0	.54
Tampering with locks	.003	.055	.003	.055	0.0	.00
Possession of escape materials	.0005	.022	.0002	.015	1.4	.77
Out of place	.089	.285	.084	.277	2.0	1.16
Possession of weapon	.011	.104	.004	.067	7.5	3.93**
Procuring a weapon	.0002	.014	.0002	.015	-0.1	-.08
Possess/manufacture/consume drugs	.090	.286	.145	.352	-17.1	-10.1**
Procuring unauthorized drugs	.006	.078	.004	.060	3.7	1.98
Possession drug paraphernalia	.0006	.024	.0004	.021	0.7	.38
Misuse of authorized medication	.015	.120	.023	.151	-6.4	-3.79**
Refused drug testing	.003	.058	.005	.070	-2.4	-1.40
Gambling	.002	.048	.003	.055	-1.3	-.76
Illegal transactions	.012	.111	.012	.109	0.5	.26
Conducting business with outsiders	.0009	.029	.0002	.015	2.8	1.44
Theft of property or fraud	.038	.191	.023	.151	8.6	4.67**
Vandalism	.011	.104	.014	.120	-3.1	-1.82

Table 5.1.1. (continued)

Measures	SRH		no SRH		% Bias	<i>t</i> -value
	$\bar{x}$	<i>s</i>	$\bar{x}$	<i>s</i>		
Type of infraction (cont.)						
Possession of another's property	.008	.089	.007	.085	0.8	.43
Possession of contraband	.074	.262	.108	.310	-11.7	-6.86**
Arson	.0005	.022	.0004	.021	0.3	.15
Tampering with fire safety equip.	.0004	.020	.0002	.015	1.0	.54
Unauthorized use phone/mail/visits	.007	.086	.020	.139	-10.6	-6.59**
Use of phone/mail to harass	.001	.035	.001	.036	-0.1	-.04
Use of phone/mail for crimes	.002	.045	.002	.048	-0.7	-.40
Self-mutilation/tattooing	.018	.135	.148	.355	-48.2	-32.3**
Possession tattooing devices	.011	.107	.043	.203	-19.5	-12.5**
Other violation	.002	.042	.0004	.021	4.0	2.04
# rule violations	1.42	.687	1.34	.634	10.9	6.11**
Male	.851	.356	.944	.229	-31.1	-16.4**
Age (years)	30.0	9.40	29.2	9.01	8.3	4.68**
Race and ethnicity						
Non-Latino African American	.502	.500	.456	.498	9.2	5.20**
Latino	.010	.098	.010	.100	-0.3	-.16
Latino – white	.009	.093	.008	.090	0.7	.42
Latino – black	.001	.037	.002	.039	-0.4	-.22
Non-Latino white	.475	.499	.521	.500	-9.2	-5.21**
# prior prison sentences	1.09	1.60	1.03	1.53	3.8	2.12
Most serious felony committed for						
Felony 1A	.023	.150	.019	.136	2.9	1.60
Felony 1	.148	.355	.132	.339	4.7	2.62*
Felony 2	.201	.401	.179	.383	5.8	3.26**
Felony 3	.355	.478	.343	.475	2.4	1.37
Felony 4	.169	.374	.198	.399	-7.6	-4.37**
Felony 5	.104	.305	.129	.335	-7.8	-4.50**
Sentence length (weeks)	300.8	4517	381.0	5178	-1.7	-.96
Time served at violation (weeks)	7.19	8.69	6.15	8.55	12.0	6.80**
Gang activity						
Disruptive gang member	.016	.126	.015	.121	1.0	.54
Active gang member	.039	.193	.043	.203	-2.2	-1.27
Passive gang member	.180	.384	.185	.389	-1.3	-.76
Substance abuse risk score (TCU)	4.76	2.87	4.91	2.70	-5.1	-2.87*
Prison industry job at offense	.030	.172	.030	.170	0.4	.21
Facility dummy variables (32, not shown)						

\*  $p \leq .01$ , \*\*  $p \leq .001$  (two-tailed)

**Table 5.2.1 Propensity score matching estimates across follow-up periods for analysis of SRS impacts on misconduct**

	SRH for first rule infraction (%) ( <i>n</i> = 4,675)	no SRH for first rule infraction (%) ( <i>n</i> = 4,675)	$\Delta\%$	SE <sub>diff</sub>	<i>t</i> -value
<u>1 month follow-up</u>					
Any violation	13.4	16.0	-2.6	0.81	-3.16***
Any crime	5.4	6.0	-0.6	0.53	-1.14
Violence	2.9	3.1	-0.2	0.39	-0.61
Discretionary	4.1	4.9	-0.9	0.48	-1.83
<u>2 months follow-up</u>					
Any violation	20.6	25.1	-4.4	0.97	-4.56***
Any crime	8.9	10.2	-1.3	0.68	-1.96*
Violence	4.8	5.4	-0.7	0.51	-1.36
Discretionary	5.7	6.9	-1.2	0.56	-2.08*
<u>3 months follow-up</u>					
Any violation	26.3	32.2	-5.9	1.05	-5.63***
Any crime	11.5	14.0	-2.5	0.77	-3.32***
Violence	6.1	7.5	-1.3	0.58	-2.33*
Discretionary	7.1	8.1	-1.0	0.61	-1.70
<u>4 months follow-up</u>					
Any violation	31.7	37.3	-5.6	1.09	-5.15***
Any crime	14.5	16.6	-2.1	0.83	-2.55**
Violence	7.4	8.8	-1.3	0.63	-2.15*
Discretionary	8.2	9.2	-1.0	0.65	-1.51
<u>5 months follow-up</u>					
Any violation	35.4	41.4	-6.0	1.12	-5.39***
Any crime	16.6	19.0	-2.3	0.88	-2.62**
Violence	8.7	10.1	-1.4	0.67	-2.17*
Discretionary	9.0	9.7	-0.8	0.67	-1.15
<u>6 months follow-up</u>					
Any violation	39.0	44.4	-5.4	1.14	-4.80***
Any crime	18.7	20.4	-1.7	0.91	-1.89
Violence	9.5	10.8	-1.3	0.70	-1.87
Discretionary	9.5	10.4	-0.9	0.69	-1.27

Table 5.2.1 (continued)

<u>7 months follow-up</u>					
Any violation	41.8	47.6	-5.8	1.14	-5.11***
Any crime	20.2	22.2	-2.0	0.94	-2.11*
Violence	10.3	11.8	-1.5	0.72	-2.09*
Discretionary	9.9	10.9	-1.1	0.70	-1.55
<u>8 months follow-up</u>					
Any violation	44.0	50.3	-6.3	1.15	-5.48***
Any crime	21.4	23.8	-2.4	0.96	-2.48**
Violence	10.8	12.5	-1.6	0.74	-2.23*
Discretionary	10.1	11.4	-1.3	0.71	-1.82
<u>9 months follow-up</u>					
Any violation	46.4	52.3	-5.9	1.15	-5.15***
Any crime	22.6	24.8	-2.2	0.98	-2.22*
Violence	11.5	13.0	-1.5	0.76	-1.93*
Discretionary	10.5	11.9	-1.4	0.73	-1.90
<u>10 months follow-up</u>					
Any violation	48.4	53.9	-5.4	1.15	-4.73***
Any crime	23.6	25.6	-2.0	0.99	-1.95*
Violence	11.9	13.5	-1.6	0.77	-2.08*
Discretionary	10.7	12.1	-1.4	0.73	-1.93
<u>11 months follow-up</u>					
Any violation	49.9	55.0	-5.1	1.15	-4.44***
Any crime	24.3	26.1	-1.8	1.00	-1.83
Violence	12.2	13.8	-1.6	0.77	-1.99*
Discretionary	10.9	12.2	-1.3	0.74	-1.73
<u>12 months follow-up</u>					
Any violation	51.0	56.3	-5.3	1.15	-4.63***
Any crime	24.9	26.6	-1.7	1.01	-1.71
Violence	12.6	14.0	-1.4	0.78	-1.80
Discretionary	11.2	12.5	-1.3	0.74	-1.71

\*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$  (two-tailed)

**Table 5.2.2 Multilevel logistic regression estimates of SRH length of stay effects on the prevalence of subsequent misconduct (odds ratios [ $e^b$ ] reported)<sup>a</sup>**

Follow-up period <sup>b</sup>	Any violation	Any crime <sup>c</sup>	Violence <sup>d</sup>	Discretionary violations <sup>e</sup>
1 month	1.005***	1.002	1.00008	1.009***
2 months	1.004***	1.003	1.002	1.007***
3 months	1.004***	1.003	1.002	1.006***
4 months	1.003*	1.001	1.0004	1.006***
5 months	1.002*	1.001	1.0006	1.006***
6 months	1.002*	1.001	1.001	1.005***
7 months	1.002*	1.001	1.001	1.005**
8 months	1.003**	1.002	1.002	1.005**
9 months	1.003**	1.003*	1.003*	1.004**
10 months	1.003**	1.003*	1.003*	1.004**
11 months	1.003**	1.003*	1.003	1.004*
12 months	1.003**	1.003*	1.003	1.004*

<sup>a</sup> Multilevel models included all level-1 predictors from Table 5.1.1, with IPs placed in SRH ( $N_1 = 10,209$ ) nested within facilities ( $N_2 = 33$ ).

<sup>b</sup> Each follow-up period began immediately after an IP's release from SRH.

<sup>c</sup> Includes physical violence (excluding threats), theft, vandalism, illegal drug use, selling drugs.

<sup>d</sup> Includes physical violence only.

<sup>e</sup> Consisting of disobedience of a direct order; refusal to carry out work or other institutional assignment; refusal to accept an assignment or classification action; disrespect to an officer, staff member, visitor, or other IP; being out of place.

\*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$  (two-tailed)

Table 5.3.1 Descriptive statistics for the analysis of mental health and placement in RH

Measures	$\bar{x}$	$s$
<i>Pooled Outcomes</i>		
Placement in SRH during first 3 months	.14	.34
Placement in SRH or ERH during first 3 months	.14	.35
Placement in ERH during first 3 months	.006	.074
# SRH placements during sentence	.90	1.94
# SRH and ERH placements during sentence	.97	2.24
# ERH placements during sentence	.12	1.06
<i>Longitudinal Outcomes (Latent Variables)</i>		
Change in mental health up to 2 years in prison <sup>a</sup>	.003	.001
Change in SRH placement up to 2 years	-.050	.004
Change in SRH or ERH placement up to 2 years	-.049	.004
Change in ERH placement up to 2 years	-.185	.046
Change in any rule violations up to 2 years	-.058	.003
<i>Predictors</i>		
Mental health at intake: psychotherapy track	.11	.31
Mental health at intake: chronic care track	.089	.28
Worst mh status during sentence: psychotherapy track	.12	.32
Worst mh status during sentence: chronic care track	.11	.31
Any rule violation during first 3 months of sentence	.18	.39
# rule violations during sentence	.89	1.81
Male	.86	.34
Age (years)	32.64	10.36
Race and ethnicity		
Non-Latino African American	.41	.49
Latino	.012	.11
Latino – white	.008	.090
Latino – black	.001	.032
Non-Latino white (reference)	.57	.50
High school degree prior to admission	.20	.40
# prior prison sentences	1.12	1.68
Most serious felony committed for		
Felony 1A	.013	.11
Felony 1	.086	.28
Felony 2	.14	.35
Felony 3	.27	.44
Felony 4	.22	.42
Felony 5 (reference)	.27	.44
Sentence length (months; capped at 360)	30.78	48.00

Table 5.3.1 (continued)

# months in prison during 10-year study period	20.43	21.60
Gang activity		
Disruptive gang member	.011	.10
Active gang member	.015	.12
Passive gang member	.068	.25
Substance abuse risk score (TCU)	4.74	2.91
Prison industry job	.023	.15
Successfully completed GED program	.005	.072
CASAS score at intake (sum of reading and math)	460.9	44.36
# visits during first 3 months of sentence (capped at 13)	1.26	2.89
# visits during sentence (capped at 150)	8.82	23.72
Facility (not shown)		

<sup>a</sup> Latent variable captures changes in mental health over 8 time points (3-month intervals). Mental health at each point measured as no mental health issues (=0), mental health issue but not intellectual and developmental disability (psychotherapy track) (=1), and seriously mentally ill (chronic care track) (=2). The 3-point scale reflects ODRC's groupings.

Table 5.4.1 Logistic regression models of RH placement during first three months of incarceration ( $N = 224,288$ )

Predictors	SRH		SRH and ERH		ERH	
	$e^b$	<i>s.e.b</i>	$e^b$	<i>s.e.b</i>	$e^b$	<i>s.e.b</i>
Constant	.08		.07		.002	
Mental health at intake: psychotherapy track	1.34**	.03	1.33**	.03	.67**	.11
Mental health at intake: chronic care track	1.49**	.03	1.48**	.03	.72*	.12
Any rule violation during first 3 months	28.6**	.02	27.2**	.02	3.60**	.07
Male	1.17	.87	1.37	.90	----	----
Age (years)	.98**	.001	.98**	.001	.98**	.004
Race and ethnicity						
Non-Latino African American	1.07**	.02	1.06**	.02	.94	.07
Latino	.89	.07	.88	.07	.59	.32
Latino – white	.96	.09	.98	.09	1.57	.26
Latino – black	.76	.24	.89	.23	2.16	.48
High school degree prior to admission	.92**	.02	.93**	.02	1.16	.08
# prior prison sentences	1.03**	.006	1.03**	.006	.998	.02
Most serious felony committed for						
Felony 1A	.89	.09	.86	.09	.65	.26
Felony 1	1.03	.04	1.01	.04	1.03	.15
Felony 2	1.08	.03	1.07	.03	1.17	.12
Felony 3	1.08**	.02	1.08**	.02	1.54	.09
Felony 4	1.04	.02	1.03	.02	.98	.09
Sentence length (months)	1.001	.0003	1.001**	.003	1.005**	.001
# months in prison during study period	.99**	.001	.99**	.001	1.01**	.002
Gang activity						
Disruptive gang member	1.21**	.06	1.03	.06	3.78**	.16
Active gang member	1.24**	.05	1.18**	.05	1.73*	.18
Passive gang member	1.15**	.03	1.16**	.02	1.95**	.10
Substance abuse risk score (TCU)	.99	.003	.997	.003	1.08**	.01
Prison industry job	.87	.06	.89	.06	1.15	.25
Education program participation	1.05	.11	1.06	.11	1.11	.41
CASAS score (sum of reading and math)	.999**	.0002	.999**	.0002	1.000	.001
# visits during first 3 months of sentence	.989**	.003	.989**	.003	1.01	.01
Facility (not shown)						
Nagelkerke $R^2$	.47		.47		.28	

Blank entries for particular variables in models of long-term RH denote limited variance in extended RH on these scales.

\*  $p < .01$ , \*\*  $p < .001$

Table 5.4.2 Negative binomial regression models of total RH placements during study window ( $N = 224,288$ )

Predictors	SRH		SRH and ERH		ERH	
	<i>b</i>	<i>s.e.b</i>	<i>b</i>	<i>s.e.b</i>	<i>b</i>	<i>s.e.b</i>
Constant	-1.95		-2.02		-11.52	
Worst mh status: psychotherapy track	.25**	.01	.25**	.01	.40**	.03
Worst mh status: chronic care track	.32**	.01	.32**	.01	.49**	.03
Total rule violations during study window	.44**	.003	.43**	.003	.28**	.004
Male	.90	.45	.98	.46	9.02**	.83
Age (years)	-.02**	.0005	-.02**	.0005	-.03**	.002
Race and ethnicity						
Non-Latino African American	.08**	.009	.08**	.008	-.04	.02
Latino	.08	.03	.08	.03	.10	.08
Latino – white	.06	.04	.06	.04	.24*	.09
Latino – black	-.07	.12	-.008	.11	.20	.24
High school degree prior to admission	-.04**	.01	-.03**	.01	-.14**	.03
# prior prison sentences	.06**	.003	.06**	.003	.06**	.008
Most serious felony committed for						
Felony 1A	.45**	.04	.45**	.03	.63**	.07
Felony 1	.51**	.02	.51**	.02	.92**	.05
Felony 2	.58**	.01	.58**	.01	.99**	.05
Felony 3	.48**	.01	.48**	.01	.79**	.05
Felony 4	.26**	.01	.26**	.01	.30**	.05
Sentence length (months)	.002**	.0001	.002**	.0001	.004**	.0002
# months in prison	.003**	.0003	.003**	.0003	.02**	.0005
Gang activity						
Disruptive gang member	.32**	.03	.31**	.03	1.92**	.03
Active gang member	.24**	.02	.24**	.02	.68**	.04
Passive gang member	.38**	.01	.38**	.01	.59**	.02
Substance abuse risk score (TCU)	.005**	.001	.005**	.001	.005	.003
Prison industry job	.001	.02	.001	.02	-.20**	.05
Education program participation	.05	.05	.05	.05	.05	.11
CASAS score (sum of reading and math)	-.001**	.0001	-.001*	.0001	-.001**	.0002
# visits during sentence	.001**	.0001	.001**	.0001	-.001	.0003
Facility (not shown)						
Likelihood ratio $\chi^2$	174601**		189806**		95978**	

Blank entries for particular variables in models of long-term RH denote limited variance in extended RH on these scales.

\*  $p < .01$ , \*\*  $p < .001$

Table 5.4.3 Latent growth curves of mental health scores, RH placements, and rule violations up to two years of confinement in prison ( $N = 224,288$ )

Latent variables	<i>b</i>	<i>s.e.b</i>	CFI	RMSEA	$\chi^2$ -baseline	$\chi^2$ -goodness of fit.
<u>Dependent: RH placements</u>						
Model 1: Change in odds of SRH			.921	.040	875,014.3	69,420.2
Change in mental health status	-.062	.036				
Change in odds of rule infractions	1.28**	.015				
Model 2: Change in odds of SRH or ERH			.918	.039	827,309.4	67,942.8
Change in mental health status	-.051	.038				
Change in odds of rule infractions	1.25**	.016				
Model 3: Change in odds of ERH			.996	.005	304,003.2	1,481.4
Change in mental health status	-.206**	.059				
Change in odds of rule infractions	.434**	.065				
<u>Dependent: Mental health status</u>						
Model 1: Mental health			.915	.042	926,111.5	78,649.9
Change in odds of SRH	.010**	.002				
Change in odds of rule infractions	.013**	.002				
Model 2: Mental health			.912	.042	879,617.8	77,518.9
Change in odds of SRH or ERH	.010**	.002				
Change in odds of rule infractions	.012**	.002				
Model 3: Mental health			.995	.006	280,813.1	1,639.99
Change in odds of ERH	-.001	.004				
Change in odds of rule infractions	.006	.006				

WLSMV estimator in *Mplus* 8.0. Binary indicators of RH placement and any rule violation (0=no; 1=yes) treated as categorical. Time periods are 3-months each; up to 8 periods included in each model. CFI = Comparative Fit Index; RMSEA = Root Mean Square Error of Approximation. \*  $p < .01$ , \*\*  $p < .001$  (two-tailed)

**Table 5.5.1 Univariate descriptive statistics for the analysis of SRH and programming interruption (N = 34,973 person-programs)**

Variables	$\bar{x}$	<i>s</i>
<b>Outcome</b>		
Program withdrawal	.19	.393
<b>Short-term restrictive housing</b>		
Pre-rule infraction board hearing SRH	.03	.18
Post-rule infraction board hearing SRH	.02	.13
<b>Statistical controls</b>		
Recovery services need level (Moderate)	.12	.33
Recovery services need level (Severe)	.83	.37
High school diploma/GED (at start of program)	.71	.45
Mental health prior to program: Psychotherapy track	.14	.35
Mental health prior to program: Chronic care track	.11	.31
Non-Latino African American	.34	.47
Latino	.02	.13
Male	.84	.37
Age (at start of program)	35.39	9.71
# prior prison sentences	1.28	1.79
Felony level 1	.14	.35
Felony level 2	.24	.43
Felony level 3	.35	.48
Felony level 4	.15	.36
Sentence length (ln)	6.89	.82
Time served in days (up to start of program)	634.5	610.2
Disruptive gang member	.01	.12
Active gang member	.02	.14
Passive gang member	.12	.32
Facility custody level during programming	1.95	.50
# violent rule violations during treatment	.02	.13
# drug rule violations during treatment	.01	.12
# property rule violations during treatment	.005	.07
# other rule violations during treatment	.02	.17

Measures dummy coded (0 = no; 1 = yes) except time served (in days), # prior prison sentences, age (in years), facility custody level during programming, and the natural log of sentence length.

Table 5.6.1. Binary logistic regression model of the impact of SRH placements on disruption of recovery services programs ( $N = 34,973$  person-programs)

Variables	<i>b</i>	<i>se<sub>b</sub></i>	<i>e<sup>b</sup></i>
Intercept	.765		2.149
Restrictive housing			
Pre-rule infraction board hearing SRH	1.003**	.070	2.726
Post-rule infraction board hearing SRH	1.337**	.105	3.807
Statistical controls			
Recovery services need level (Moderate)	.089	.081	1.093
Recovery services need level (Severe)	.186*	.071	1.205
High school diploma/GED (at start of program)	-.298**	.031	.743
Mental health prior to program: Psychotherapy track	.272**	.041	1.313
Mental health prior to program: Chronic care track	.301**	.046	1.351
Non-Latino African American	-.022	.033	.978
Latino	.028	.106	1.028
Male	.210**	.044	1.234
Age (at start of program)	-.034**	.002	.967
# prior prison sentences	.053**	.009	1.055
Felony level 1	-.012	.074	.988
Felony level 2	.062	.061	1.064
Felony level 3	.030	.052	1.031
Felony level 4	.082	.055	1.085
Sentence length (ln)	-.268**	.030	.765
Time served in days (up to start of program)	.00028**	.00003	1.00027
Disruptive gang member	.436**	.107	1.547
Active gang member	.427**	.091	1.532
Passive gang member	.287**	.043	1.333
Facility custody level during programming	.058	.030	1.060
# violent rule violations during treatment	.699**	.102	2.013
# drug rule violations during treatment	1.547**	.111	4.696
# property rule violations during treatment	.503*	.166	1.653
# other rule violations during treatment	.642**	.078	1.900
Nagelkerke $R^2 = .105$			

\*  $p \leq .01$  \*\*  $p \leq .001$  (two-tailed)

Table 6.1.1. Balance between treatment and control groups for the analysis of SRH and prison returns: Matching without replacement

Covariates	Mean		% Bias	t-value
	SRH (n = 14,285)	no SRH (n = 14,285)		
Male	.899	.904	-1.6	-1.24
Age (years)	30.59	30.13	5.1	4.10**
Race and ethnicity				
African American	.385	.402	-3.3	-2.75*
Latino	.012	.012	-0.3	-0.28
Latino – white	.006	.006	-0.5	-0.47
Latino – black	.001	.001	-0.9	-0.71
High school graduate	.180	.177	0.9	0.71
# prior prison sentences	1.11	1.10	0.5	0.44
Sentence length (months)	16.60	18.08	-6.8	-7.50**
Most serious felony committed				
Felony 1	.031	.039	-3.3	-3.68**
Felony 2	.094	.117	-6.3	-6.16**
Felony 3	.274	.283	-2.1	-1.73
Felony 4	.274	.264	2.3	1.79
Felony 5	.337	.296	7.4	5.52**
Gang activity				
Disruptive gang member	.002	.005	-2.2	-3.51**
Active gang member	.013	.018	-2.9	-3.23**
Passive gang member	.127	.138	-3.1	-2.78*
Substance abuse risk score	4.90	4.87	0.9	0.75
Mental health: psychotherapy	.111	.113	-0.5	-0.44
Mental health: chronic care	.104	.110	-1.9	-1.65
CASAS reading and math scores (summed)	459.4	459.6	-0.6	-0.54
GED obtained during sentence	.004	.005	-0.7	-0.64
Failed recovery service program	.016	.018	-1.4	-1.36
Passed recovery service program	.061	.068	-2.3	-2.03
No recovery service program	.923	.914	2.7	2.46
Prison industry job at offense	.013	.014	-0.6	-0.62
# visits during sentence	7.50	8.09	-2.4	-2.34
Violent rule violation(s)	.228	.309	-17.0	-15.08**
Drug rule violation(s)	.196	.214	-4.0	-3.54**
Rule violation within 3 months of release	.395	.397	-0.5	-0.37

Table 6.1.1. (continued)

Facility				
1	.034	.038	-1.9	-1.89
2	.057	.056	0.4	0.34
3	.042	.045	-1.1	-0.98
5	.038	.042	-1.4	-1.37
6	.027	.035	-3.4	-3.97**
7	.101	.096	1.6	1.24
8	.089	.093	-1.4	-1.14
9	.002	.002	-0.3	-0.29
10	.068	.063	1.9	1.60
11	.024	.029	-2.2	-2.54
12	.026	.028	-0.9	-0.78
13	.076	.075	0.1	0.09
14	.018	.017	0.5	0.42
15	.573	.574	-0.1	-0.07
16	.025	.024	1.0	0.71
17	.015	.015	-0.2	-0.20
18	.003	.003	-0.1	-0.11
19	.017	.016	0.1	0.05
20	.009	.014	-2.8	-3.78*
21	.333	.339	-1.1	-0.91
22	.013	.015	-1.8	-1.86
23	.011	.010	1.4	1.09
24	.007	.007	-0.1	-0.07
25	.074	.082	-2.9	-2.65*
26	.105	.105	-0.1	-0.12
27	.100	.100	0.0	-0.00
28	.128	.133	-1.5	-1.30
30	.018	.017	0.6	0.47
31	.008	.010	-1.7	-2.06
32	.052	.054	-0.8	-0.68

Mean Bias: Unmatched = 11.4%; Matched = 2.0%

Median Bias: Unmatched = 8.4%; Matched = 1.4%

Rubin's R: Unmatched = 2.07; Matched = 0.78

\*  $p \leq .01$ , \*\*  $p \leq .001$  (two-tailed)

Table 6.2.1. Propensity score modeling of the prevalence of prison returns within three years after release for IPs placed in SRH at any point during their sentence versus IPs not placed in SRH at any point during their sentence<sup>a</sup>

	SRH (%) ( <i>n</i> = 14,285)	no SRH (%) ( <i>n</i> = 14,285)	Δ%	SE <sub>diff</sub>	<i>t</i> -value
Return to prison—new crime	27.6	25.7	1.89	.54	3.52***
Return to prison—technical violation or new crime	35.7	37.6	-1.90	.59	-3.25***

<sup>a</sup> Matching without replacement. Analytic sample includes gang members and IPs with at least one rule violation during sentence. Sample excludes IPs with ERH placements during sentence.

\*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$  (two-tailed)

Table 6.3.1. Balance between treatment and control groups for the analysis of ERH and prison returns: Matching without replacement

Covariates	Mean		% Bias	t-value
	ERH (n = 2,963)	no ERH (n = 2,963)		
Male	.9996	.9986	0.6	1.34
Age (years)	25.77	25.61	1.9	0.80
Race and ethnicity				
African American	.549	.555	-1.2	-0.45
Latino	.011	.011	0.0	0.00
Latino – white	.013	.011	1.4	0.49
Latino – black	.002	.002	-0.9	-0.30
High school graduate	.113	.108	1.2	0.51
# prior prison sentences	1.07	1.05	1.4	0.56
Sentence length (months)	46.25	45.6	2.3	0.66
Most serious felony committed				
Felony 1	.219	.206	3.6	1.17
Felony 2	.313	.319	-1.3	-0.46
Felony 3	.294	.299	-1.0	-0.38
Felony 4	.106	.108	-0.6	-0.26
Felony 5	.067	.066	0.1	0.05
Gang activity				
Disruptive gang member	.179	.169	3.5	1.05
Active gang member	.088	.096	-3.1	-0.97
Passive gang member	.270	.273	-0.9	-0.30
Substance abuse risk score	.599	4.67	-2.3	-0.84
Mental health: psychotherapy	.154	.160	-1.5	-0.55
Mental health: chronic care	.159	.166	-1.9	-0.68
CASAS reading and math scores (summed)	456.7	457.0	-0.6	-0.23
GED obtained	.006	.007	-2.4	-0.82
Failed recovery service program	.048	.051	-1.8	-0.61
Passed recovery service program	.090	.099	-3.1	-1.13
No recovery service program participation	.862	.850	3.7	1.32
Prison industry job at offense	.031	.028	2.2	0.79
# visits during sentence	15.46	15.87	-1.4	-0.49
Violent rule violation(s)	.838	.854	-3.7	-1.69
Drug rule violation(s)	.433	.431	0.5	0.19
Rule violation within 3 months of release	.326	.325	0.3	0.11

Table 6.3.1. (continued)

Facility				
1	.043	.050	-3.1	-1.26
2	.041	.039	0.9	0.41
3	.045	.038	3.0	1.27
4	.198	.196	0.6	0.20
5	.270	.274	-0.8	-0.27
6	.0004	.001	-0.6	-1.34
7	.055	.046	3.6	1.58
8	.001	.001	-0.8	-0.38
9	.031	.032	-0.5	-0.23
10	.200	.214	-4.2	-1.31
11	.002	.002	-0.5	-0.58
12	.079	.077	0.6	0.25
13	.025	.024	1.1	0.43
14	.513	.508	1.0	0.37
16	.030	.034	-2.4	-0.84
17	.012	.014	-1.9	-0.59
19	.171	.179	-2.7	-0.80
20	.511	.517	-1.2	-0.45
21	.106	.102	1.7	0.52
22	.003	.002	1.0	0.54
23	.0004	.0004	0.0	-0.00
24	.090	.103	-4.3	-1.66
25	.061	.064	-1.3	-0.55
26	.077	.078	-0.3	-0.10
27	.104	.106	-0.6	-0.26
28	.001	.00035	1.2	1.34
29	.134	.130	1.7	0.51
30	.050	.047	1.4	0.55
31	.956	.959	-1.0	-0.59
32	.043	.050	-3.1	-1.26

Mean Bias: Unmatched = 20.9%; Matched = 1.6%

Median Bias: Unmatched = 14.5%; Matched = 1.3%

Rubin's R: Unmatched = 1.05; Matched = 0.88

\*  $p \leq .01$ , \*\*  $p \leq .001$  (two-tailed)

Table 6.4.1. Propensity score modeling of the prevalence of prison returns within three years after release for IPs placed in ERH at any point during their sentence versus IPs not placed in ERH at any point during their sentence<sup>a</sup>

	ERH (%) ( <i>n</i> = 2,963)	no ERH (%) ( <i>n</i> = 2,963)	Δ%	SE <sub>diff</sub>	<i>t</i> -value
Return to prison—new crime	35.1	30.9	4.17	1.25	3.34 <sup>***</sup>
Return to prison—technical violation or new crime	54.2	50.6	3.53	1.32	2.66 <sup>**</sup>

<sup>a</sup> Matching without replacement. Analytic sample includes gang members and IPs with at least one rule violation during their sentence. IPs might have also served time in SRH during their sentence.

\*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$  (two-tailed)

Table 7.2.1. Longitudinal Poisson regression of ERH placements on all rule infractions and violent rule infractions (N = 741 prison-time periods)

	Model 1 (all rule infractions)			Model 2 (violent rule infractions)		
	b	E.R.R.	R.S.E.	b	E.R.R.	R.S.E.
Intercept	6.237	511.410	0.096	4.669	106.584	0.105
<i>Time invariant</i>						
Medium security	0.454***	1.575	0.091	0.247*	1.281	0.087
<i>Time varying</i>						
Time unit	0.008*	1.008	0.003	0.015***	1.015	0.002
Send-offs	-0.002	0.998	0.002	-0.001	0.999	0.001
Receipts	0.019†	1.019	0.009	0.026†	1.027	0.013
Within-facility RH	0.00005	1.00005	0.0002	0.0002	1.0002	0.0001
Felony level ratio	-0.141	0.868	0.109	0.033	1.033	0.073
Median age	-0.040	0.961	0.023	-0.037	0.964	0.023
Population	0.0001	1.0001	0.0001	0.0003***	1.0003	0.0001
	Variance components			Variance components		
Intercept	0.17307***			0.21045***		
Time unit	0.00014***			0.00006***		
Send-offs	0.00010***			0.00004***		
Receipts	0.00148***			0.00270***		
Within-facility RH	0.00000***			0.00000***		
Felony level ratio	0.22187***			0.08748***		
Median age	0.00988***			0.00894***		
Population	0.00000***			0.00000***		

E.R.R. = Event rate ratio.

†  $p < .10$ , \*  $p \leq .05$ , \*\*  $p \leq .01$ , \*\*\*  $p \leq .001$  (two-tailed)