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The impact of prison facility characteristics on the various uses of solitary confinement

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The Impact of Prison Facility Characteristics on the Various Uses of Solitary Confinement

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Table of Contents

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Abstract

Researchers have not yet dedicated sufficient attention to the effect of prison facility characteristics on the various uses of solitary confinement. This study employs nationally representative correctional facility survey data to assess how certain prison characteristics affect the use of disciplinary segregation, administrative segregation, and protective custody. The prison characteristics include inmate total, female facility, proportion of inmates in maximum custody, proportion of black inmates, overcrowding, staff-to-inmate ratio, proportion of inmates with work assignments, and total assaults. The study also evaluates how the various forms of solitary confinement impact prison violence/misconduct. Poisson regression models suggest that the use of all forms of solitary confinement are positively associated with larger facilities, facilities with a higher staff-to-inmate ratio, and facilities with a greater number of assaults. And the use of administrative segregation and protective custody is positively associated with increased prison violence. Policy implications of the use of solitary confinement are discussed.

Introduction

The practice of solitary confinement can currently be classified into three general forms; disciplinary segregation, administrative segregation, and protective custody. Solitary confinement is primarily used as a response to violence or a way to maintain safety and control in a prison. While disciplinary segregation is used typically to contain and deter violence, studies have found evidence that psychological effects of solitary confinement can cause increased aggression and violent tendencies often resulting in violence against other inmates and staff (Haney, 2012; Vasiliades, 2005). Subsequently, inmates are placed back into solitary confinement as punishment for their misconduct and the cycle begins again. Other sources have found neither short-term nor long-term confinement had a reduction on disciplinary infractions (Haney, 2018) or deterred post-prison recidivism (Butler et al., 2017). The notion that solitary confinement exacerbates violence rather than deterring it raises the question of whether American prisons should continue the practice at all. A greater understanding of the effects of solitary confinement on inmate misconduct will provide clarity on the value of solitary confinement as a mechanism for prison safety. Moreover, it is unclear how characteristics of the prison environment affect the use of solitary confinement. The purpose of this study is to examine how various prison characteristics and compositions of prison populations are associated with the use of solitary confinement.

At this point in time there has been little attention paid to the decisions of prisons regarding disciplinary responses to misconduct and the sanctioning of solitary confinement (Cochran, Toman, Mears & Bales, 2018). Generally, prison officials use legal and extralegal factors to determine an inmate's deservingness of punishment. Legal factors include an inmate's misconduct history, criminal history, and severity of the crime/misconduct, while extra-legal

factors include an inmate's age, sex, involvement in prison work activities, connection with family and friends, and others. Inmates who committed violent acts against persons in the past or did not participate in any prison programs or classes may be perceived as a greater risk to the safety of the prison community due to these characteristics often being associated with misconduct, and therefore more likely to be placed in solitary confinement (Butler & Steiner, 2017). Recently more research has examined violence in prison as a result of prison characteristics including: overcrowding, security level, staff-inmate ratio, and prison management controls (Steiner & Wooldredge, 2008; Worrall & Morris, 2011; Steiner, Butler & Ellison, 2014; Huebner, 2003). Increased violence in prison often leads to increased use of solitary confinement, whether as a disciplinary response or an administrative decision to protect or detain certain individuals.

Butler and Steiner (2017) conducted a study to determine if sanctioning disparities exist within and between prisons. They found both legal and extralegal factors had an effect on the use on solitary confinement; inmates with longer misconduct histories, male inmates, and younger inmates were significantly more likely to be placed in segregation. The study also found prisons with greater proportions of inmates classified as minimum-security and greater proportions of inmates with a work assignment used disciplinary segregation significantly less. However, the significant prison-level factors only accounted for 21 percent of the variation of disciplinary segregation use between prisons (Butler & Steiner, 2017). I intend to expand on the findings of Butler and Steiner (2017) and explore other potential predictors of different forms of solitary confinement, not just disciplinary segregation.

Using the 2005 Census of State and Federal Adult Correctional Facilities, this study will test how certain characteristics of prison facilities affect the use of different forms of solitary

confinement. I further seek to gain greater understanding of factors affecting prison violence/misconduct and the effect of solitary confinement on misconduct. In what follows, I will first review the current literature on solitary confinement and the factors and consequences of its application. Second, I will conduct an analysis of the Census data regarding how different characteristics of prison facilities impact the various forms of solitary confinement and prison misconduct. Lastly, I will end with a discussion of the implications of the study's findings and potential alternatives for the future.

Forms of Solitary Confinement

The first use of solitary confinement in the United States was more than two hundred years ago when the American correctional system transformed from brutal corporal punishment to attempted repentance and solitude. Influenced by the Enlightenment, reformers believed solitary confinement would induce self-reflection in prisoners and inspire them to live responsible, moral lives (Cloud, Drucker, Browne & Parsons, 2015). The use of solitary confinement became commonplace in the nineteenth century with the rise of the modern penitentiary (Smith, 2006). The practice of solitary confinement has changed significantly over the years and can currently be classified into three general forms: administrative segregation, disciplinary segregation, and protective custody. Solitary confinement is no longer used as a mechanism to induce penitence, but as a mechanism to control inmate behavior and provide safety for both prisoners and the prison staff (Browne, Cambier & Agha, 2011).

Administrative Segregation

Administrative segregation is used for inmates who are deemed a threat to the general population of the prison (O'Keefe, 2008; Frost & Monteiro, 2016). Prison administrators have absolute discretion when deciding who to label as 'threatening', and how long they will be

separated. Historically, the strategy for separating inmates followed one of the two dominant behavioral control models: dispersion and consolidation. Dispersion follows a "divide-and-conquer" philosophy where inmates labeled as a 'threat' are dispersed across the correctional system, so they may better be handled by staff and have less of an impact on the general prison population. Consolidation is motivated by the belief that all of the disruptive and dangerous offenders should be held in a central location, a separate unit or facility, allowing greater efficiency in the dispersion of resources and staff to monitor said inmates. Contemporary use of administrative segregation is closely associated with the consolidation approach in most prisons (Frost & Monteiro, 2016). Prison management has full discretion on who is chosen to be placed in administrative segregation. The most common reasons for inmates being placed in administrative segregation include: being perceived as an escape risk, committing repeated violent behavior, committing riotous behavior, and being perceived as a security risk to staff and other inmates (O'Keefe, 2008).

In some prison systems, inmates are not informed of the reasoning behind their segregation and have very little chances of being reevaluated and released (Browne et al., 2011). Correctional staff are not required to justify their reasoning for placing an inmate in administrative segregation, nor are they required to use specific criteria to make such decisions. The duration of administrative segregation is far longer than disciplinary segregation or protective custody; it can last for years as opposed to months (O'Keefe, 2008). The length of stay is usually indefinite and is at the complete discretion of prison administrators (Frost & Monteiro, 2016). Subsequently, the length of segregation can be extended for minor infractions of the rules at the discretion of correctional staff. This often results in inmates being disproportionately punished in response to the seriousness of the offense and being subjected to isolation for an

infraction that should have only earned something as minor as a strike on their record (Human Rights Watch, 2000).

Administrative segregation is undisputedly the most restrictive form of solitary confinement used to incapacitate inmates (O'Keefe, 2008; Toch, 2001). The conditions of confinement are extremely harsh and unforgiving. Inmates are placed in a single bunk cell with no windows; 24-hour lighting; denied any reading materials or entertaining activity; lack of outdoor recreation or exercise; and limited rehabilitative services and programs (O'Keefe, 2008; Frost & Monteiro, 2016). Many inmates are restricted to their cells for 23 hours of the day and given one hour to exercise and attend to personal hygiene. Inmates also have restrictions on interpersonal contact; they are prohibited from speaking with other inmates; and visitation rights of family members are limited and may be prohibited for more than a year. When visitation is granted, there must be a physical barrier between inmate and visitor and communication is done through telephone or a speaker (Browne, Cambier & Agha, 2011). Many of these conditions are seen by critics as excessively harsh and inhumane and appear to serve more as a punishment than as actual security protections (O'Keefe, 2008). Administrative segregation follows a consolidation model where high-risk inmates are concentrated to a specific unit or facility separate from the general prison population. Supermax is also an archetype of this model. Administrative segregation, supermax, intensive management unit, and security housing units are all names used to describe the same thing: long-term solitary confinement (O'Keefe, 2008; King, 1999; Collins, 2004). Other forms of solitary confinement can be for a shorter duration but can be just as damaging to the recipient.

Disciplinary Segregation

Disciplinary segregation is a sanction administered to inmates for a rule violation within the prison facility (Browne, Cambier & Agha, 2011). There are few differences between disciplinary segregation and administrative segregation across federal prisons. However, some studies found disciplinary segregation was more restrictive than administrative segregation in that inmates were primarily housed alone and were prohibited from smoking and owning certain property; and they received fewer commissary/canteen privileges (Miller & Young, 1997). However, unlike administrative segregation, inmates are first awarded due process rights before being placed in disciplinary segregation and the duration of segregation is time-limited (Frost & Monteiro, 2016). Before inmates are sanctioned with disciplinary segregation they must be afforded a prison disciplinary process in front of a committee by law.

The prison disciplinary process. *Wolf v. McDonnell* (1974) established some basic due process protections to inmates facing serious disciplinary infractions (Butler & Steiner, 2017; Babcock, 1980). Minor violations of rules are punished only though the restriction of privileges (visitation, access to television, cell restriction) (Crouch, 1985). Major violations can be punished by disciplinary segregation or retracting good-time credits. The Supreme Court held that because these are liberty interests, some procedural due process must be applied (Babcock, 1980). Criteria to determine what constitutes a liberty interest are the duration of confinement and the impact the punishment will have on an inmate's release date (Butler & Steiner, 2017). The court instituted three mandatory rights for all cases of major violations: the right to a fair hearing, the right to a written notice of the charges 24 hours before the hearing, and the right to a written statement outlining the evidence relied upon and the reason for a disciplinary action after the hearing. However, the court did not grant inmates the right to counsel, the right to cross-

examine witnesses who explicitly provided adverse evidence against them; nor did the court require guilt be proven beyond a reasonable doubt (Babcock, 1980). Hearings for major rule violations are conducted by a prison disciplinary committee and are closed to the public in most states. Researchers have found it is extremely difficult to challenge charges determined by prison disciplinary committees; few inmates have been successful in disputing their punishment (Freeman, 2003; Flanagan, 1982). As such, the limited due process protections provided to prisoners results in the disciplinary committee having substantial discretion on the type and duration of punishment (Butler & Steiner, 2017). Greater understanding on the use and impacts of solitary confinement in response to a rule infraction is important not only to prison administrators and human rights advocates, but especially for inmates as well. Disciplinary segregation can impact a prisoner's date of release, the type of programming or work opportunities they are exposed to, and the inmate's custody level (Poole & Regoli, 1980; Butler & Steiner, 2017).

Despite the serious consequences that can occur from the use of disciplinary segregation, there is minimal research on the factors that influence disciplinary decision making in prisons. Most studies have focused solely on decision-making processes regarding punishment prior to imprisonment. However, given the similarities between criminal sentencing and the prison disciplinary process, researchers have found parallels between the two decision making procedures (Butler & Steiner, 2017). Similar to judges, prison administrators sanction punishments to establish order and control offender's behavior. Furthermore, prison officials have limited information regarding an inmate's potential for subsequent violence or misconduct. It is likely that prison disciplinary committees will follow similar practices of the criminal sentencing process to mitigate this uncertainty (Steffensmeier, et al., 1998; Butler & Steiner,

2017). In judicial decision-making, the focal concerns perspective is used to explain how legal and extralegal factors influence sentencing decisions. Legal factors include severity of the offense and an individual's criminal history. Extralegal factors include the defendant's race, gender, and age, etc. (Engen & Gainey, 2000).

Focal concerns. The focal concerns perspective proposes that judges are influenced by three main concerns: the offender's blameworthiness, risk to the community, and the practical consequences for the institution and the offender when implementing the punishment (Steffensmeier et al., 1998). Butler and Steiner (2017) explained how focal concerns would be relevant to the prison disciplinary decision-making process. They argued prison officials are likely to use the same focal concerns in order to reduce the uncertainty of making a sanctioning decision regarding an inmate's risk for future misconduct (Butler & Steiner, 2017).

Blameworthiness is often ascertained by looking at an inmate's role in the infraction/misconduct, the severity of the violation, and the misconduct history of an inmate. The punishment severity is determined by the offender's culpability and the degree of injury caused to others (Butler & Steiner, 2017; Crouch, 1985; Steffensmeier, Ulmer & Kramer, 1998). The most significant factor in disciplinary sentencing is the seriousness of the offense, which is evaluated by measuring the culpability of an inmate and the damage caused to the facility or its residents (Crouch 1985; Steffensmeier, Ulmer & Kramer, 1998). Inmates with longer misconduct histories are more likely to be considered blameworthy as they are often considered more knowledgeable of prison rules and sanctions (Crouch, 1985). A study done by Butler and Steiner (2017) found inmates with longer time served in prison received more placements in segregation than inmates who had served less time in prison. Prison disciplinary boards also factor in the offender's role in the offense to determine blameworthiness, e.g. whether the inmate was a

leader, participant, conspirator, etc. (Steffensmeier, Ulmer & Kramer, 1998). For example, an inmate that is responsible for planning a riot would be considered the 'leader' and likely to receive a harsher punishment than an inmate who just participated in the riot.

Safety of the community is also another determinant of punishment severity. Prison administrators have a duty to not only protect the staff in the facility but the inmates as well (Park, 2000). Disciplinary committees typically target offenders previously labeled as dangerous, or use punishments to deter potential offenders (Steffensmerier, Ulmer & Kramer, 1998). Prison officials are then led to make predictions regarding an inmate's potential to commit a serious violation through the evaluation of certain criteria. Inmates with significant criminal histories, such as crimes against persons, are more likely to be perceived as a greater risk to the prison community. Inmates who have been previously incarcerated are more likely to be placed in solitary confinement. Commitment to conventional activities (marriage, prison work, rehabilitative programs) is also a factor in the perceived likelihood of inmate violence (Butler & Steiner, 2017; Bales & Miller, 2012; Steiner, Butler & Ellison, 2014). Inmates who participated more in work programs are less likely to be considered a potential threat to facility safety; similarly inmates who received more visits are less likely to be put in solitary confinement (Butler & Steiner, 2017). Additionally, certain groups within the inmate population are overrepresented and therefore are more likely to be labeled as dangerous. Inmates who are younger, racial and ethnic minorities and male are overrepresented in prisons and are more likely to receive solitary confinement (Butler & Steiner, 2017; Steiner, Butler & Ellison, 2014).

Prison officials may also take into account the consequences and constraints placed on the inmate following a disciplinary sanction. For example, inmates with histories of abuse or mental health problems may be less likely to be placed in solitary confinement, due to their

inability to handle such isolation (Adams, 1986). However, some researchers have found mentally ill inmates have been more likely to be placed in segregation for misconduct (Steiner, Butler & Ellison, 2014). Facility administrators may also take into account an inmate's family and social bonds. Therefore, inmates with children and inmates who are visited regularly are less likely to receive segregation. Butler and Steiner (2017) found that inmates with more visits were significantly less likely to receive disciplinary segregation than inmates who were not visited. Disciplinary committees may also consider the inmate's "ability to do time"; whether or not the offender has a health condition, cognitive defect, or history of mental illness (Steffensmeier, Ulmer & Kramer, 1998).

Protective Custody

The decision to place an inmate in disciplinary segregation is the responsibility of the disciplinary committee. The decision to place an inmate in protective custody can be the inmate's or an administrator's. Protective custody is used to protect the prisoner from other prisoners. The use of segregation in this context is to provide safety to vulnerable inmates in the general population (Browne, Cambier & Agha, 2011). Prisoners may be placed into protective custody by management because they provided information to correctional staff and are now targeted as a 'snitch.' Placement in protective custody may also happen to protect inmates from being victimized due to their sexual orientation or physical and personality characteristics (Clear, 2015; Frost & Monteiro, 2016). Although inmates in protective custody are segregated for their own protection, the amount of restriction and isolation can be just as severe as administrative or disciplinary segregation (Browne, Cambier & Agha, 2011).

Ironically, many prisoners who voluntarily request to be placed in protective custody receive fewer freedoms than inmates placed in disciplinary segregation. Protective custody inmates require maximum security protections; therefore, they are reassigned to a higher security rating that no longer reflects the level of crime they are incarcerated for and are held in isolation until prison administrators decide otherwise. Inmates in protective custody are then labeled as a "risk" and given a higher security status despite what their security status was originally. Subsequently, prisoners with higher security statuses are less likely to be considered for parole. In other words, inmates who request protective custody placement are more likely to be dismissed as a candidate for parole because of the negative connotations associated with being isolated in maximum custody. Additionally, inmates in protective custody have more restrictions on access to entertainment in their cells such as television, books, or radio, than inmates in the general prison population, and have more restrictions on their access to the prison chapel and their ability to call home (Gendreau, Tellier & Wormith, 1985).

Theoretical Framework behind Misconduct

The use of solitary confinement has been largely related to misconduct. Inmate misconduct is a violation of prison rules that pose a threat to the orderly operation of a facility (Steiner, 2008). Misconduct in a facility can result in a disciplinary infraction from which the inmate is sanctioned to disciplinary segregation, administrators placing inmates in administrative segregation to protect the general community, or the use of protective custody to separate certain individuals and protect the victimized. There have been two competing schools of thought regarding the reasoning behind inmate misconduct: the deprivation vs. importation theories. Each theory seeks to explain why inmates commit violence in prison.

The importation theory attributes violence and inmate behavior to the inmate's pre-prison identity and past experiences (Irwin & Cressey, 1962). Prison environments are often brutal and cruel; many inmates may fall back on their violent tendencies in order to survive in a community reliant on toughness (Harer & Steffensmeier, 1996; Poole & Regoli, 1980). Deprivation theory suggests inmate misconduct is not a result of inmate characteristics, but a result of prison-specific variables that influence how an inmate adapts to prison-life. When an inmate is deprived of pleasures and marks of status in society, they often seek satisfaction and personal worth through deviant and learned means (Harer & Steffensmeier, 1996; Sykes, 1956). Inmates may participate in social systems to reduce the pains of being deprived of many freedoms, or they may make certain individual level choices to gain some satisfaction in a situation they have little control over (Steiner & Wooldredge, 2008).

Yet, inmates may not commit violence in response to pains of imprisonment (deprivation) or as a result of past experiences (importation). A third framework is also used to explain inmate misconduct; it deviates from the idea that inmates commit violence in response to pains or as a result of baggage brought into prison. The administrative control theory proposes inmate behavior is a product of prison management (Dilulio, 1990). No prison is managed the same way and all prisons house a variety of different inmates with different backgrounds. Aggregate level characteristics have been found to have substantial impact on misconduct rates and differences in facilities management often coincide with differences in the level of violence (Steiner & Wooldredge, 2013).

Prisons with high rates of misconduct and greater proportions of high-risk inmates are likely to result in increased use of solitary confinement. The safety of the prison and prison community is a focal concern of prison officials. Increased misconduct in a prison could result in

increased use of formal/coercive controls such as disciplinary segregation (Butler & Steiner, 2017), administrative segregation (to separate inmates labeled as potential threats to safety), or protective custody to shelter certain inmates from victimization.

Individual Level Controls

The influence of individual characteristics associated with an inmate's propensity to commit violence is most often explained through the importation theory. Characteristics that may influence inmates' behavior prior to incarceration include; race, gender, age, educational level, employment status, marital status, substance abuse, offense type, and criminal history (Bales & Miller, 2012; Steiner & Wooldredge, 2008; Steiner & Wooldredge, 2013). Factors found to decrease misconduct include inmates who were married and had higher levels of educational attainment (Worrall & Morris, 2011). Moreover, inmates who were employed immediately before imprisonment or remain connected to their spouse or family during the duration of their sentence, are less likely to violate the rules for fear of losing good time (Steiner & Wooldredge, 2009; Wooldredge, Griffin & Pratt, 2001). The main individual factors associated with an increase in misconduct are age, race, criminal history, and mental illness and victimization (Steiner & Wooldredge, 2009; Worrall & Morris, 2011; Day, Bauer & Butler, 2015).

Age. Age is one of the most common characteristics linked with misconduct. Younger inmates are likely to have lower levels of commitment to conventional activities, be without a job or marriage to motivate them; and have a lower stake in conformity which often results in higher rates of rule violations. Many studies have revealed an inmate's age is negatively associated with their rate of misconduct (Steiner & Wooldredge, 2009; Worrall & Morris, 2011; Wooldredge, Griffin & Pratt, 2001). Younger inmates are significantly more likely to commit violent misconduct than older inmates (Day, Bauer & Butler, 2015; Harer & Steffensmeier,

1996). As a result of increased rates of violence younger inmates were more likely to be placed in disciplinary segregation than older inmates (Steiner & Butler, 2017).

Race. The link between race and inmate violence has been explained by the belief that minority inmates' pre-prison environments influenced their violent behavior. Minority and low socioeconomic status neighborhood residents are often struggling with poverty and marginalization. Low-status groups often hold fewer legitimate means of demonstrating their ability and worth. As a result, they may adapt to their circumstances through the adoption of deviant values. The use of violence as a means of attaining status and respect is a common cultural value of disadvantaged communities (Anderson, 1999). Minorities and marginalized communities are also likely to feel anger and resentment towards law enforcement. Subsequently, when minorities are imprisoned they may bring their deviant values and indignation towards legal authority into prison, resulting in increased rates of inmate and staff assault (Harer & Steffensmeier; Steiner & Wooldredge, 2009).

Research on the effect of race on misconduct has been limited and varied. A study conducted by Harer and Steffensmeier in 1996 found black inmates committed violence significantly more than white inmates. However, a study by Poole and Regoli (1979) found the rate of rule breaking in prison was the same for white and black inmates. Another study found white inmates were significantly more likely to commit violent misconduct than black inmates (Day, Bauer & Butler, 2015). It is unclear whether black inmates commit more misconduct then white inmates; however, what is clear is that black inmates are punished for misconduct more than whites (Cochran, et al., 2018).

There is considerable evidence throughout the literature that court actors are more likely to perceive minority defendants as dangerous (Cochran, et al., 2018; Crawford, et al., 1998;

Demuth & Steffensmeier, 2004; Warren, et al., 2012). Blacks were significantly more likely to receive an incarceration sentence than either Hispanics or Whites (Bales & Piquero, 2012). Furthermore, it is likely that since court actors and prison administrations use the same focal concerns to determine punishment, they may be influenced by the same racial biases. Prison staff may perceive black inmates as more of a threat to the safety of the community and place them in administrative segregation. Or, correctional staff may give infractions more frequently to black inmates due to their biased perceptions. The longer the misconduct history of an inmate, the more likely they are to be sanctioned with disciplinary segregation when brought in front of a disciplinary committee (Butler & Steiner, 2017).

Criminal history. Inmates imprisoned for serious offenses are more likely to have little respect for authority, making it more likely they will commit misconduct. Similarly, the more serious and varied a criminal record is, the lengthier the sentence. Some studies have found a positive relationship between sentence length and the rate of misconduct (Wooldredge, Griffin & Pratt, 2001). Inmates with longer sentences have higher odds of committing violent misconduct (Day, Bauer & Butler, 2015). However other studies have found inmates with shorter sentences commit violent misconduct at a higher rate than those with lengthier sentences (Harer & Steffensmeier, 1996). Inmates with an increased likelihood of committing violence are then more likely to be placed in disciplinary segregation (Butler & Steiner, 2017). Similarly, inmates who are perceived as more violent or labeled as a high-risk offender and have longer misconduct histories are more likely to be placed in administrative segregation (Steiner & Cain, 2016).

Mental illness & Victimization. Victimization and mental illness also have an increasing effect on the likelihood of committing misconduct. Many inmates who suffered from physical or sexual abuse are more likely to engage in misconduct. Mentally ill inmates are also

more likely to commit misconduct; this may be a maladaptive response to the helplessness and victimization experienced in prison (Steiner & Wooldredge, 2009). As a result, these inmates may be more likely to be placed in disciplinary segregation as a response to rule violations, or be placed in protective custody to isolate them from abusers.

Prison Level Controls

Individual characteristics are not the only factors in determining why an inmate commits misconduct. Deprivation theory is often used to highlight the impact of facility level factors, such as prison crowding, security level, prison size, proportion of staff to inmates, facility location, racial composition of inmates/staff, and proportion of inmates in prison work or programs on inmate behavior (Steiner & Wooldredge, 2008; Worrall & Morris, 2011). Furthermore, many researchers have found inmate violence is substantially influenced by prison-specific characteristics (Harer & Steffensmeier, 1996; Steiner, Butler & Ellison, 2014).

Prison crowding. Although research on the influence of prison crowding on inmate misconduct is limited, some penologists recently have begun framing overcrowding as a 'deprivation' that is creating harsher living conditions for prisoners (Gaes & McGuire, 1985; Harer & Steffensmeier, 1996). When prisons are overcrowded inmates are forced to live in congested living quarters; tensions are likely to be high causing greater stress, anger, and depression amongst inmates (Steiner, 2009; Wooldredge, Griffin & Pratt, 2001). Crowding has also been found to cause social disorganization and weaken communications between inmates and staff. Lack of communication between staff and inmates can result in weak management and a breakdown of control, creating an environment more conductive to a violent outbreak (Steiner, 2009; Useem, 1985). Therefore, it's likely that the more inmates there are in a prison, the more likely an assault will occur against an inmate or staff member (Steiner, 2009; Wooldredge,

Griffin & Pratt, 2001). The more assaults that occur, the more likely inmates are being placed in disciplinary segregation in response. However, findings have been varied regarding a relationship between misconduct and prison crowding; some studies found a positive relationship, some found no relationship for some forms of conduct, and another found a negative relationship for certain forms of misconduct (Ekland-Olson, Barrick & Cohen, 1983; Gaes & McGuire, 1985; Nacci, Teitelbaum & Prather, 1977; Wooldredge, Griffin & Pratt, 2001). Increased rates of misconduct in a prison due to crowding could result in increased use of solitary confinement as a punitive or protective measure. However, crowding could have no effect on the use of solitary. Butler and Steiner (2017) found there was no significant effect of level of crowding on the use of disciplinary segregation.

Security level. Worrall and Morris (2011) conducted a study of the impact of prison security levels in Texas on the rate of misconduct. The authors found custody level had a significant positive relationship with misconduct. Even after taking into account prior good time lost (time off for good behavior can be forfeited when a prisoner commits a disciplinary infraction), inmates housed in higher security levels committed more misconduct (Worrall & Morris, 2011). Other recent studies have revealed that as security level increases, rates of misconduct increase (Steiner & Wooldredge, 2013; Harer & Steffensmeier, 1996). As the number of inmates in maximum security facilities increase, there is an increase in rates of assault. In contrast, a greater number of inmates in minimum security prisons are associated with fewer assaults (Steiner, 2009). Greater assaults in prisons are likely to result in greater uses of punitive measures such as disciplinary segregation. Facilities with higher levels of security often have a different physical layout that is more restrictive and sterile. Higher security prisons are also typically employed by more staff and guards, and house more dangerous/high-risk inmates

(Steiner & Wooldredge, 2009; Steiner, 2009). Inmates who are labeled as high-risk offenders or are perceived as dangerous are more likely to be placed in administrative segregation by prison administrators. The higher the ratio of guards to inmates in a facility, the stricter the surveillance is on inmate behavior. It is possible that greater surveillance will lead to decreased amounts of inmate violence due to inmates feeling apprehensive of the consequences of misconduct (Steiner, 2009). Yet, greater surveillance could lead to greater numbers of infractions being given to inmates. Increased surveillance means inmates are more likely to be caught not following the rules, and therefore more likely to be punished with disciplinary segregation.

Racial composition. A study done by Steiner, Butler and Ellison (2014) observed that prisons with higher security levels and higher densities of black inmates had higher rates of misconduct. Researchers have found institutions with greater racial heterogeneity are positively associated with increased levels of misconduct (Steiner, 2009; Steiner, Butler & Ellison, 2014). Increased proportions of black inmates in prison are likely to lead to increased scrutiny and citations for rule infractions (Poole & Regoli, 1979). Carroll (1974) argues that prison guards are usually from communities with minimal interracial contact and tend to perceive black inmates as dangerous, foreign, and threatening to white society. Differential definitions and responses to black and white inmate behavior may result in disproportionately oppressive disciplinary responses to infractions by minorities (Poole & Regoli, 1979). Wade-Olson (2016) found black inmates were more likely than whites to face increased punishments while incarcerated, reflecting the disproportionate treatment of minority offenders in other levels of the criminal justice system process (Wade-Olson, 2016; Britt, 2000).

African American offenders are more likely to be sentenced to prison even when controlling for pertinent characteristics of the individual and case (Britt; 2000). Accordingly, it is

likely that racial biases occur at the various levels of the in-prison disciplinary process as well. Correctional officers may be acting on racial biases when issuing a write-up or disciplinary committees could be biased in the decision to determine guilt (Crouch, 1985). Cochran et al. (2018) found it was significantly more likely for a black inmate to be sanctioned to disciplinary segregation than a white inmate. Poole and Regoli (1979) discovered black inmates were more likely to receive a write-up for a rule violation than white inmates. Many other researchers have reported inmates with minority or low socioeconomic status often receive harsher punishments, in comparison to white affluent inmates, after committing similar offenses (Crouch, 1985). Even when controlling for the seriousness of the crime, race significantly impacted the disposition of punishment (Thornberry, 1973). Biased disciplinary decisions are apparent when observing the most important determinant for disciplinary sanctions. Prior record of rule infractions is the most significant determinant of punishment for black inmates, while the type of infraction committed has a minor impact. Disciplinary decisions regarding white inmates are primarily influenced by the type of infraction, while prior record had no measurable effect on decisions. Black inmates are not only disproportionately cited for rule infractions, they are disproportionately being judged on those rule infractions, not the offense type (Poole & Regoli, 1979) (for an exception see: Burke & Turk, 1975; Hagen, 1973).

Administrative control theory. Other aggregate-level explanations for inmate misconduct are management perspectives, such as administrative control theory, that suggest differences in rates of misconduct are a result of how the prison facility is managed (Dilulio, 1990; Steiner, Butler & Ellison, 2014). Administrative control theory focuses on the use of several forms of control to manage inmate violence. The theory seeks to explain prison violence and disorder as a result of prison administrators enforcing rules and regulations that upset the

inmate social system. Prison administrators' efforts to run a facility exactly "by the book" undermines informal power relations between staff and inmates, causing violence and potential riots in response (Dilulio, 1990). Prison management systems primarily use two main forms of control: coercive and remunerative. Coercive controls follow a philosophy of punishment and the restriction of freedoms and personal needs through force and physical sanctions, such as solitary confinement (Huebner, 2003). For example, a coercive control could be increasing the staff-to-inmate ratio or administrative transfers of difficult inmates (Wooldredge & Smith, 2018). Contrary to their intention, coercive experiences have been found to be positively associated with inmates' resistance/defiance and violent misconduct. In general, if inmates perceive coercive controls as unjust or capricious, they are more likely to feel helpless, angry, alienated, and ultimately more likely to violate the rules. Inmates are also more likely to conduct violent misconduct when facilities have unclear rules and apply severe and/or inconsistent punishments, and when inmates perceive the prison environment as unsafe (Day, Bauer & Butler, 2015).

Remunerative controls are based on the distribution of rewards and resources, aimed at growing a commitment between inmate and the institution's rules and goals (Huebner, 2003; Steiner, Butler & Ellison, 2014; Butler & Steiner, 2017). Rewards include: desirable work assignments and resources such as access to prison programming and education for inmates who follow the rules and regulations (Butler & Steiner, 2017; Steiner, Butler & Ellison, 2014). Researchers have found the use of remunerative controls, such as employing inmates in desirable work assignments, is associated with a reduction in staff assault (Steiner, 2009). Colvin (1992) found that greater use of remunerative controls could lead to decreased use of disciplinary segregation. The more an inmate is involved in vocational and educational programming or prison work, the less likely an inmate is to commit assaults against staff or inmates (Huebner,

2003; Butler & Steiner, 2017). Other researchers studying the administrative control model found facilities that balanced coercive and remunerative controls were less likely to have incidents of misconduct, in comparison to facilities that used only coercive controls (Colvin, 1992; Huebner, 2003; Steiner, Butler & Ellison, 2014).

Consequences of Solitary

Behavior and Violence

Solitary confinement is the primary mechanism of coercive controls. Theoretically, it exerts a deterrent effect due to the fear inmates have of experiencing punishment or solitary confinement. However, coercive controls have been found to be associated with increased rates of rule violations and inmate violence (Day, Bauer & Butler, 2015). Inmates exposed to increased amounts of solitary confinement are likely to perceive their treatment as unfair and as an abuse of correctional discretionary decision-making. In turn, they may be more likely to commit violence post-solitary (Day, Bauer & Butler; Morris, 2016; Sherman, 1993). Furthermore, studies have found that inmates returning from solitary confinement report higher levels of negative attitudes, panic, hypersensitivity, cognitive dysfunction, anxiety, depression, hopelessness, rage, aggression, self-mutilation, and suicide (Haney, 2012). A handful of correlational studies have found an exacerbating relationship between solitary confinement and the rate of violence directed towards staff members, property destruction, and collective violence (Haney, 2012).

Increased exposure to solitary confinement can result in physical and mental deterioration, often resulting in extreme psychological problems (Haney, 2012; Vasiliades, 2005). The continuous absence of interpersonal social contact and environmental stimuli can cause inmates to develop extreme feelings of restlessness and increased violent behaviors.

Reduced Environmental Stimuli (RES) is a medical condition often diagnosed in inmates who have experienced substantial exposure to solitary confinement. The main symptoms of RES are hallucinations, perceptual distortions, paranoia, inability to control impulses, and aggressive fantasies (Vasiliades, 2005). After being sanctioned to solitary confinement, inmates who were generally minor troublemakers may become more violent and impulsive. Inmates returning from solitary are more likely to have weakened inhibitions, lack of self-preservation, and extremely violent tendencies (King, Steiner & Breach, 2008). Other research has found evidence of solitary confinement resulting in higher levels of apathy, chronic fatigue, and inactivity. These symptoms of solitary are likely to reduce the odds of misconduct, rather than exacerbate them (Morris, 2016). However, other studies have found the sanction of solitary confinement, whether short of lengthy, has no deterrent effect on the rate of disciplinary infractions or the rate of recidivism after release. Moreover, additional studies have gone further and found solitary confinement may have an increasing effect on the rate of post-prison offending (Haney, 2018; Morris, 2016).

Mental Health

Solitary confinement can not only turn a minor troublemaker into an extremely violent inmate, it can turn a mentally stable person into an individual crippled by psychological and emotional dysfunction (Haney, 2009; Grassian & Freidman, 1986; Steinbuch, 2014). Inmates sanctioned to solitary confinement experience a greater rate of physiological and psychiatric health issues than inmates in the general population. Physiological symptoms that occur from solitary confinement include severe headaches, oversensitivity to stimuli, muscle pains, heart palpitations, and problems with digestion (Smith, 2006). The majority of prisoners who have experienced confinement develop psychiatric disturbances such as an agitated confusional state, cognitive dysfunction, delirium, paranoia, depression, and impulsive, random acts of violence

often inflicted on themselves (Frost & Monteiro, 2016; Grassian & Friedman, 1986; Smith, 2006). Isolated prisoners often return from segregation with impaired concentration and are in a general state of confusion. They are sometimes unable to read, follow a television program, or simply comprehend what is going on around them.

The deprivation of social contact in solitary confinement can result in inmates experiencing perceptual distortion and destabilization of their sense of self. Humans rely on social interactions to psychologically ground themselves in their thoughts, actions, and feelings. Long-term isolated prisoners are at risk of losing a grasp on who they are. Some inmates have reported acting out in solitary for the sole purpose of reassuring themselves they are still alive by getting a reaction from another human being (Haney, 2009). Additionally, a lack of social contact would result in an inability to adjust to an environment. In other words, inmates with no social contact have serious issues discerning reality from fantasy, and the internal from the external (Arrigo & Bullock, 2008). Inmates segregated from the rest of the prison population often hear voices during their time in isolation, experience delusions, and fantasize about anything and everything (Smith, 2006).

In the absence of using interpersonal connections to define oneself and one's reality, inmates in isolation will often develop a concept of self in terms of their environment around them. This can result in a definition of self that is grounded in animosity towards the prison system and a motivation to oppose and resist the guards and control mechanisms (Haney, 2009). In addition, prisoners spend endless hours in isolation with no source of entertainment, often resulting in inmates ruminating on their anger. Some inmates spend hours planning how to thwart the prison system oppressing them or fantasize about getting revenge on a guard (Haney, 2009). As the length of solitary increases, the inmate's violence and anger increase as well, and

their ruminations become extremely violent and aggressive as the confinement continues (Miller & Young, 1997; Smith, 2006). Additionally, experiences of solitary confinement result in inmates developing negative emotional reactions such as depression, anxiety, feelings of hopelessness, lethargy, and problems with impulse control (Haney, 2009). Inmates returning from isolation have higher rates of violent reactions (stabbings, attacks on staff, property damage), self-mutilation, and suicidal tendencies (Frost & Monteiro; Smith, 2006).

These negative physiological and psychiatric responses are observed in individuals with and without a prior mental illness (Grassian & Friedman, 1986). However, researchers have found solitary confinement exacerbates preexisting mental illnesses of inmates, while at the same time significantly restricting their access to therapeutic resources (Grassian & Friedman, 1986). Studies have estimated a third of the inmates in solitary confinement have a pre-existing mental illness. That means a third of the inmates in solitary confinement are experiencing both new and amplified mental health disturbances (Haney, 2009). Mentally ill inmates are more likely to develop antisocial behaviors, sleep disturbances, hostility, psychopathology, cognitive dysfunction and long-term animosities towards their environment, peers, and even family relationships (Steinbuch, 2014).

Another serious consequence of solitary confinement is the stripping of inmates' abilities to conduct themselves after release. Inmates who are released into the general population or back into society struggle with initiating behavior. Severe apathy and lethargy are symptoms of solitary confinement that often result in inmates being incapable of motivating themselves to begin an action on their own accord. Isolated inmates have grown so accustomed to having every aspect of their lives controlled that they lose the ability to initiate their own behavior and lose touch of their self-identity. They often struggle with talking to and understanding others, and

suffer with hallucinations of images and noises, anxiety, and panic attacks (Smith, 2006). Released inmates from solitary confinement also struggle with intolerable feelings such as rage, frustration, and anger. Many prisoners act out when they are released as a means of testing their environment, since they have lacked the social contact to do so pro-socially. Or they retreat into themselves and disengage from society completely (Arrigo & Bullock, 2008).

Hypotheses

Solitary confinement can have serious health and behavioral consequences, yet the use of solitary confinement is barely restricted at all. This study seeks to determine if certain correctional facility characteristics influence the use of disciplinary segregation, administrative segregation, or protective custody and how solitary confinement affects prison misconduct. The prison characteristics examined in this study include: inmate total, female facilities, proportion of inmates in maximum custody, proportion of black inmates, overcrowding, staff to inmate ratio, proportion of inmates with work assignments, and the total assaults in a facility.

Correctional facilities that house a greater number of inmates are more likely to have an incident of misconduct or assault (Steiner, 2009; Wooldredge, Griffin & Pratt, 1985), while female facilities should have lower rates of prison misconduct (Celinska & Sung, 2014). Assaults will also be more likely in facilities with a greater number of inmates in maximum security (Steiner, 2009). In addition, solitary confinement should be more likely in prisons that have a greater black population and overcrowding. Researchers have found black inmates are more likely to be sanctioned to disciplinary segregation (Poole & Regoli, 1979; Cochran, et al., 1985) and prison overcrowding can lead to administrators losing control and violent outbreaks occurring, increasing the likelihood of solitary confinement (Steiner, 2009; Useem; 1985). Solitary confinement should also be negatively associated with a greater staff to inmate ratio and

the number of inmates in prison programs. Greater surveillance in a prison is associated with decreased levels of violence due to the likelihood that inmates try to avoid being punished (Steiner, 2009) and researchers have found the greater amount of inmates in programming or prison work the less likely staff or inmate assaults will occur (Huebner, 2003; Butler & Steiner, 2017), thereby reducing the need for solitary confinement. In contrast, facilities with a greater number of assaults should also have greater use of solitary confinement. Inmates with increased likelihoods to commit violence are more likely to be placed in disciplinary segregation, similarly, inmates who are perceived as more violent are more likely to be place in administrative segregation (Butler & Steiner, 2017; Steiner & Cain, 2016). Based on the above, I hypothesize:

H1: Facilities with a larger population of inmates will be positively associated with the use of solitary confinement.

H2: Facilities that house female inmates will be negatively associated the use of solitary confinement.

H3: Facilities with a larger proportion of inmates in maximum custody will be positively associated with the use of solitary confinement.

H4: Facilities with a larger proportion of black inmates will be positively associated with the use of solitary confinement.

H5: Facilities with overcrowding will be positively associated with the use of solitary confinement.

H6: Facilities with a greater staff to inmate ratio will be negatively associated with the use of solitary confinement.

H7: Facilities with a larger proportion of inmates with work assignments will be negatively associated with the use of solitary confinement.

H8: Facilities with a greater number of assaults will be positively associated with the use of solitary confinement.

Moreover, inmates returning from solitary confinement are more likely to lack self-preservation, have increase violent tendencies and weakened inhibitions (King, Steiner & Breach, 2008). Studies have found the sanction of solitary confinement has no deterrent effect on disciplinary infractions (Haney, 2018; Morris, 2016), which indicates that the use of solitary confinement will foster the occurrence of prison violence/misconduct. I therefore predict:

H9: The use of restricted housing will have a positive effect on number of assaults in a facility.

H10: The use of disciplinary segregation will have a positive effect on the number of assaults in a facility.

H11: The use of administrative segregation will have a positive effect on the number of assaults in a facility.

H12: The use of protective custody will have a positive effect on the number of assaults in a facility.

Methodology

Data

To evaluate whether certain prison characteristics influence the use of solitary confinement, I conducted a secondary data analysis using data from the 2005 Census of State and Federal Adult Correctional Facilities (CSFCF). The Census is a national enumeration of inmates housed in State and Federal prisons sponsored by the Bureau of Justice Statistics and directed by the U.S. Census Bureau. The 2005 CSFCF included 1,821 facilities that were staffed by Federal, States, local, or private employees; held inmates mostly for Federal or State authorities; were

physically and operationally separate from other facilities; and operational by the end of 2005 or were previously included in the census five years before. Facilities included in the Census were: prisons, reception/diagnostic centers, prison farms, bootcamps, community corrections, youthful offender facilities (except California), facilities for parole violators/persons returned to custody, drug and alcohol treatment facilities, and mental health facilities.

I focus on secure confinement facilities and how prison administrations use solitary confinement to manage inmates' safety and violence. Boot camps and community correctional facilities have a number of features that distinguish them from a secure prison facility (e.g. open dormitory housing); therefore, they are excluded from the sample. In addition, 331 cases were dropped from the sample due to missing values on the variables to be modeled so that and the means and standard deviations of variables were not significantly affected by the removal of missing values. The final sample size of prisons for this study is 805 facilities.

The Census surveyed facilities on a range of issues including, but not limited to, the demographics of the incarcerated population, prison misconduct, programs, staff/inmate death, physical security, and restrictive housing. To test my research questions, I relied upon survey questions regarding the composition of prison inmates, total inmate population, total staff population, prison misconduct, prison crowding, use of restrictive housing, and work assignments.

Measures

Dependent variables. All measures used in the analysis are included in Table 1. The dependent variables include four count variables measuring the number of inmates in different forms of solitary confinement and one measure of misconduct/violence. The four count variables represent the number of inmates in a restricted housing unit (n=1126), disciplinary

Table 1: Description of Prison Sample

	Mean	(SD)	Range
Dependent Variables			
Restricted Housing Count	58.906	(128.877)	0-1126
Disciplinary Segregation Count	23.375	(65.656)	0-978
Administrative Segregation Count	29.137	(94.202)	0-1121
Protective Custody Count	6.39	(38.104)	0-738
Total Assaults	16.810	(52.174)	0-764
Natural Log. Total Assaults	1.080	(1.670)	0-6.64
Independent Variables			
Proportion in Restricted Housing	.047	(.108)	0-1
Proportion in Disciplinary Segregation	.022	(.076)	0-1
Proportion in Administrative Segregation	.021	(.066)	0-1
Proportion in Protective Custody	.005	(.022)	0-0.28
Inmate Total	1015.79	(895.451)	8-7199
Natural Log. Inmate Total	6.495	(1.066)	2.08-8.88
Female Facility	.122	(.327)	0-1
Proportion in Maximum Custody	.163	(.277)	0-1
Proportion of Black inmates	.416	(.194)	0-0.91
Overcrowding	.328	(.470)	0-1
Staff - Inmate Ratio	.224	(.184)	0-2.85
Proportion with Work Assignment	.675	(.301)	0-1.67

N = 805

segregation unit (n=978), administrative segregation unit (n=1121), or protective custody unit (n=738). The restrictive housing measure is representative of all the different forms of solitary confinement. Solitary count measures were created from open-ended survey questions asking facilities the number of inmates in various forms of restrictive housing. The variable measuring misconduct/violence is the total number of reported assaults on both staff and inmates. To account for the extreme skew caused in total assaults, the natural logarithm of the variable was modeled when utilized as a control variable. The variation between values remains the same, but the distribution of the numbers is transformed to bring in outliers and reduce skewness.

Independent variables. In Table 1 the independent variables for the analyses described below include total inmate population, whether the facility housed female inmates, the proportion of inmates in maximum custody, the proportion of black inmates, overcrowding, staff to inmate ratio, the proportion of inmates with work assignments, and total assaults. When examining how solitary confinement affects prison misconduct, four solitary proportion measures serve as independent variables, while total inmate population, whether the facility housed female inmates, the proportion of inmates in maximum custody, the proportion of black inmates, overcrowding, staff to inmate ratio, and proportion of inmates with work assignments are used as controls. The four proportion values represent the proportion of inmates in restrictive housing, disciplinary segregation, administrative segregation, and protective custody in relation to the total inmate population. The total inmate population was determined by an open-ended response question in the survey regarding the inmate total of each facility. To account for skewness caused by the large numbers and outliers in this measure I took the natural logarithm of the inmate total.

A dichotomous variable is used to measure whether or not a facility houses female inmates. Proportion of inmates in maximum custody was measured by dividing the total number of inmates reported in maximum custody over the total inmate population of the facility. The proportion of inmates that are black was determined by dividing the total number of inmates classified as African American over the total number of inmates in a facility. Overcrowding was measured using a dichotomous variable; this was calculated by comparing the inmate total to the facilities rated capacity. Facilities with a population greater than the rated capacity were classified as overcrowded. The variable measuring facilities' staff to inmate ratio was calculated by taking the facility's total staff population divided by the total inmate population. The variable representing the proportion of inmates on work assignments was determined by comparing the survey results of open-ended questions regarding the total number of inmates in prison industries, facility support services, agriculture, public works assignments, or 'other' in comparison to the facility's total number of inmates.

Of the 805 facilities in the data, 552 (68.6%) had a restricted housing unit. Four hundred and forty-three prisons (55.0%) reported having inmates in a disciplinary segregation unit, 372 facilities (46.2%) reported having inmates in an administrative segregation unit, and 156 prisons (19.4%) reported having inmates in a protective custody unit. The average proportion of inmates housed in restricted housing across the data sample was 4.7 percent; the average count was 58.9 inmates. The average proportion of inmates housed in disciplinary segregation was 2.2 percent and the average count was 23.4 inmates. The average proportion of inmates housed in administrative segregation was 2.1 percent and the average count was 29.1 inmates. The average proportion of inmates housed in protective custody was 0.45 percent and the average count was 6.4 inmates.

Statistical Analysis

To test whether the various prison characteristics listed above were associated with the use of solitary confinement or the incidence of violence in prison, I conducted Poisson regression models. A Poisson regression is used because the dependent variables are count in nature and there are multiple independent variables. Multicollinearity diagnostics indicated the absence of multicollinearity among predictor values. The relationship between prison characteristics and the number of inmates in various forms of solitary confinement is presented in Table 2. I estimated four different models using the same covariates as independent variables and each of the solitary confinement counts as dependent variables. Table 3 presents the relationship between the use of solitary confinement and the total number of assaults while controlling for relevant prison characteristics. I estimated four different models each using the same covariates as Table 2, with a solitary confinement proportion measure as the primary independent variable. Four models were used in Table 3 to examine the impact of different forms of solitary confinement in assaults and to avoid multicollinearity among the measures of solitary confinement and increase model parsimony. By examining the odds ratios, the models revealed how a single unit increase of an independent variable is associated with a percentage increase/decrease of the number of inmates in each form of solitary confinement or total number of assaults in a facility.

Findings

Table 2 depicts the results from the Poisson regression models examining the impact of prison characteristics on the count of inmates housed in the various forms of solitary confinement. All of the predictor variables are significantly associated with the number of inmates housed in each form of solitary confinement. Regarding the results of the restricted housing count model, female facilities are strongly associated with having fewer inmates in restricted housing in comparison to male facilities. Overcrowded facilities and facilities with a higher proportion of inmates with work assignment also have a significant negative association with the number of inmates in restricted housing. On the other hand, larger facilities, facilities with a greater proportion of inmates in maximum custody, facilities with a greater proportion of black inmates, facilities with a higher staff to inmate ratio, and facilities with a greater number of total assaults have a significant positive association with the restricted housing count. Based on the odds ratios, the covariates with the greatest magnitude of effects on the number of inmates in restricted housing are the staff to inmate ratio (exp(b)=5.339, p=.000), the proportion of black inmates (exp(b)=4.493, p=.000), and the inmate total (exp(b)=3.720, p=.000).

Results of the disciplinary segregation count model reveal female facilities, overcrowded facilities, and facilities with a higher proportion of inmates with work assignments have a significant negative association with the number of inmates in disciplinary segregation. Conversely, prisons with a greater number of inmates, greater proportion of inmates in maximum custody and black inmates, and a higher staff to inmate ratio have a significant positive association with the number of inmates in disciplinary segregation. Facilities with an increased number of total assaults were also significantly associated with an increase in the disciplinary segregation count. The covariates with the greatest magnitude of effects on the number of

inmates in disciplinary segregation are the proportion of black inmates (exp(*b*)=5.408, p=.000), the staff to inmate ratio (exp(*b*)=3.848, p-.000), and the inmate total (exp(*b*)=2.301, p=.000).

Table 2: Effects of Covariates on Solitary Confinement Counts

Variable	Restricted Housing Count		Disciplinary Segregation Count		Administrative Segregation Count		Protective Custody Count	
	b	exp(*b*)	*b*	exp(*b*)	*b*	exp(*b*)	*b*	exp(*b*)
	(se)		(se)		(se)		(se)	
Inmate Total	1.314**	3.720	.833**	2.301	1.632**	5.114	1.867**	6.470
	(.0090)		(.0129)		(.0139)		(.0293)	
Female Facility	-.621**	.537	-.959**	.383	-1.276**	.279	.570**	1.768
	(.0258)		(.0447)		(.0535)		(.0431)	
Prop. Maximum Custody	.235**	1.265	.436**	1.546	-.237**	.789	1.169**	3.220
	(.0164)		(.0241)		(.0272)		(.0414)	
Prop. Black Inmates	1.503**	4.493	1.688**	5.408	1.861**	6.428	-.285**	.752
	(.0274)		(.0428)		(.0401)		(.0856)	
Overcrowding	-.429**	.651	-.096**	.909	-.655**	.519	-.571**	.565
	(.0099)		(.0154)		(.0143)		(.0315)	
Staff to Inmate Ratio	1.675**	5.339	1.348**	3.848	1.994**	7.345	2.192**	8.957
	(.0262)		(.0365)		(.0473)		(.0714)	
Prop. Work Assignments	-.645**	.525	-1.318**	.268	-.131**	.878	-.052	.949
	(.0172)		(.0254)		(.0259)		(.0567)	
Total Assaults	.106**	1.112	.095**	1.100	.113**	1.119	.080**	1.083
	(.0025)		(.0039)		(.0035)		(.0078)	
N= 805								

Maximum likelihood coefficients reported with robust standard errors in parenthesis.
* $p \leq .05$, ** $p \leq .01$

The administrative segregation count model results indicate female facilities, facilities with a greater proportion of inmates in maximum custody, overcrowded facilities, and facilities with a greater proportion of inmates with work assignments have a significant negative association with the number of inmates housed in administrative segregation. In contrast, the administrative segregation count is positively associated with larger facilities, facilities with a greater proportion of black inmates, facilities with a higher staff to inmate ratio, and facilities with a greater number of total assaults. Based on the odds ratios, the covariates with the greatest magnitude of effects on the number of inmates in administrative segregation are the staff to

inmate ratio (exp(*b*)=7.345, p=.000), the proportion of black inmates (exp(*b*)=6.428, p=.000), and the inmate total (exp(*b*)=5.114, p=.000).

The protective custody count model results demonstrate the number of inmates housed in protective custody is negatively associated with facilities with a greater proportion of black inmates, overcrowded facilities, and facilities with a greater proportion of inmates with work assignments. The protective custody count is positively associated with larger facilities, female facilities, facilities with a greater proportion of inmates in maximum custody, facilities with a higher staff to inmate ratio, and facilities with an increased number of total assaults. Covariates with the greatest magnitude of effects on the number of inmates housed in protective custody are the staff to inmate ratio (exp(*b*)=8.957, p=.000), the inmate total (exp(*b*)=6.470, p=.000), and the proportion of inmates in maximum custody (exp(*b*)=3.220, p=.000).

Regardless of type of confinement, the use of solitary confinement was negatively associated with facilities with overcrowding and facilities with a greater proportion of inmates with work assignments. Female facilities have a negative association with the restricted housing count, disciplinary segregation count, and administrative segregation count, but are positively associated with the protective custody count. All solitary confinement measures were positively associated with larger facilities, facilities with a higher staff to inmate ratio, and facilities with a greater number of total assaults. Interestingly, facilities with a greater proportion of inmates in maximum custody have a positive association with each of the solitary count models, except the administrative segregation count. Additionally, facilities with a greater proportion of black inmates have a positive association with each of the solitary count models, except the protective custody count.

Table 3 depicts the results from the Poisson regression models examining the impact of prison characteristics on the total number of assaults with the proportion of inmates in each form of solitary confinement as the primary independent variables. All of the predictor variables are significantly associated with total number of assaults in a facility. The results of Model 1 show larger facilities, facilities with a greater proportion of inmates in maximum custody, facilities with a greater proportion of black inmates, overcrowded facilities, and facilities with a higher staff to inmate ratio have a significant positive association with the total number of assaults. Facilities with a greater proportion of inmates in restricted housing also have a significant positive association with the total number of assaults. While female facilities and facilities with a greater proportion of inmates with work assignments have a significant negative association with the total number of assaults. Covariates with the greatest magnitude of effects on the total number of assaults in Model 1 are the staff to inmate ratio (exp(*b*)=9.272, p=.000), the inmate total (exp(*b*)=3.713, p=.000), and the proportion of inmates in restricted housing (exp(*b*)=2.096, p=.000).

Results from Model 2 demonstrate larger facilities, facilities with a greater proportion of inmates in maximum custody, facilities with a greater proportion of black inmates, overcrowded facilities, and facilities with a higher staff to inmate ratio have a significant positive association with the total number of assaults. On the other hand, female facilities, facilities with a greater proportion of inmates with work assignments, and facilities with a greater proportion of inmates housed in disciplinary segregation have a significant negative association with the number of total assaults. The odds ratios show that covariates with the greatest magnitude of effects on the total number of assaults in Model 2 are the staff to inmate ratio (exp(*b*)=9.254, p=.000), the

inmate total (exp(*b*)=3.710, p=.000), and the proportion of inmates in maximum custody (exp(*b*)=1.960, p=.000).

Table 3: Effects of Covariates on Total Assaults

Variable	Model 1		Model 2		Model 3		Model 4	
	b	exp(*b*)	*b*	exp(*b*)	*b*	exp(*b*)	*b*	exp(*b*)
	(se)		(se)		(se)		(se)	
Inmate Total	1.312**	3.713	1.311**	3.710	1.306**	3.693	1.307**	3.695
	(.0152)		(.0151)		(.0152)		(.0152)	
Female Facility	-.692**	.501	-.746**	.474	-.679**	.507	-.752**	.471
	(.0454)		(.0457)		(.0455)		(.0458)	
Prop. Maximum Custody	.638**	1.892	.673**	1.960	.641**	1.899	.660**	1.936
	(.0274)		(.0274)		(.0275)		(.0274)	
Prop. Black Inmates	.152**	1.164	.253**	1.288	.195**	1.215	.235**	1.266
	(.0509)		(.0510)		(.0505)		(.0505)	
Overcrowding	.093**	1.097	.060**	1.062	.086**	1.090	.067**	1.070
	(.0184)		(.0183)		(.0183)		(.0183)	
Staff to Inmate Ratio	2.227**	9.272	2.225**	9.254	2.214**	9.153	2.226**	9.261
	(.0339)		(.0335)		(.0338)		(.0336)	
Prop. Work Assignments	-.962**	.382	-1.020**	.360	-.982**	.375	-1.011**	.364
	(.0316)		(.0314)		(.0314)		(.0312)	
Prop. Restricted Housing	.740**	2.096	--	--	--	--	--	--
	(.0557)							
Prop. Disciplinary Seg.	--	--	-.238*	.788	--	--	--	--
			(.1089)					
Prop. Administrative Seg	--	--	--	--	1.295**	3.650	--	--
					(.0649)			
Prop. Protective Custody	--	--	--	--	--	--	1.128**	3.090
							(.3277)	
N= 805								

Maximum likelihood coefficients reported with robust standard errors in parenthesis.
* $p \leq .05$, ** $p \leq .01$

Model 3 shows that the total number of assaults are significantly positively associated with larger facilities, facilities with a greater proportion of inmates in maximum custody, facilities with a greater proportion of black inmates, overcrowded facilities, and inmates with a higher staff to inmate ratio. Facilities with a greater proportion of inmates in administrative segregation also have a significant positive association with the total number of assaults. And the total assault count is significantly negatively associated with female facilities and facilities with a

greater proportion of inmates with work assignments. Based on the odds ratios, covariates with the greatest magnitude of effects on the total number of assaults are the staff to inmate ratio (exp(*b*)=9.153, p=.000), the inmate total (exp(*b*)=3.693, p=.000), and the proportion of inmates housed in administrative segregation (exp(*b*)=3.650, p=.000).

Finally, Model 4 reveals larger facilities, facilities with a greater proportion of inmates in maximum custody, facilities with a greater proportion of black inmates, overcrowded facilities, facilities with a higher staff to inmate ratio, and facilities with a greater proportion of inmates in protective custody have a significant positive association with the number total assaults. While female facilities and facilities with a greater proportion of inmates with work assignments have a significant negative association with the number of total assaults. Covariates with the greatest magnitude of effects on the total number of assaults are the staff to inmate ratio (exp(*b*)=9.261, p=.000), the inmate total (exp(*b*)=3.695, p=.000), and the proportion of inmates housed in protective custody (exp(*b*)=3.090, p=.001).

All of the models in Table 3 depict female facilities and facilities with a greater proportion of inmates with work assignments having significantly fewer assaults. Interestingly, facilities with a greater proportion of inmates in disciplinary segregation had significantly fewer assaults than facilities with an increase in proportions of inmates in restricted housing, administrative segregation, or protective custody. Each form of restricted housing, other than disciplinary segregation, had a positive association with the total assault count. Larger facilities, facilities with a greater proportion of inmates in maximum custody, facilities with a greater proportion of black inmates, overcrowded facilities, and facilities with a higher staff to inmate ratio also had significantly more assaults in each of the four models.

Conclusion

Discussion

The purpose of this study is to examine the impact of prison characteristics on the various uses of solitary confinement and the amount of misconduct/violence in a facility, as well as, demonstrate the impact of different forms of solitary confinement on the amount of violence in prison. The findings of the study confirmed H1. Larger facilities are positively associated with all forms of solitary confinement. This is likely due to the fact that misconduct incidents are more likely to occur in a facility with a greater number of inmates (Steiner, 2009; Wooldredge, Griffin & Pratt, 1985). The more incidents that occur in a facility, the more likely the prison administrators will use solitary confinement to promote order and control.

H2 was partially supported. Facilities that house female inmates are negatively associated with the use of each form of solitary confinement except protective custody. Facilities that house female inmates may have a greater number of inmates in protective custody due to the sexual victimization of female inmates. There are more than 200,000 females incarcerated in the United States and at least 15 percent have been a victim of a staff or inmate perpetrated sexual assault (Piecora, 2014). Even though sexual assaults are quite prevalent in prisons, there are limited punishments in place to deter perpetrators. The Prison Litigation Reform Act (PLRA) requires victims of sexual assault to exhaust all administrative means before they can file a suit against abusers in federal court. Even if inmates are able to get their case to federal court, they must meet a high burden of proof, which is often extremely hard to obtain (Stone, 2017; Piecora, 2014). Therefore, it is likely female inmates either seek out protective custody themselves to avoid their abuser or are sanctioned to protective custody by the prison administration as a solution to the problem.

H3 was also partially supported by the findings. Facilities with a larger proportion of inmates in maximum custody are positively associated with the use of all forms of solitary confinement, except administrative segregation. These results are unusual because inmates who are placed in maximum custody are typically labeled high-risk/dangerous and are more likely to be placed in administrative segregation. However, it is possible that prison administrators are using a different form of solitary confinement instead.

The findings of the study also partially supported H4. Facilities with a larger proportion of black inmates are positively associated with each form of solitary confinement except protective custody. Facilities with a greater proportion of black inmates may have a negative effect on the protective custody count due to the fact that black inmates are in the majority in prison. Black inmates may be less likely to be victimized because of their majority status and their ability to "mix in" to their peer groups (Pierson, 1990). On the other hand, white inmates have been found to be attacked at a greater rate than any other race (Stone, 2017).

H5 was not supported by the findings. Overcrowded facilities were negatively associated with the use all forms of solitary confinement. This is not too surprising since the relationship between inmate misconduct and prison crowding has been varied in research over the years (Ekland-Olson, Barrick & Cohen, 1983; Gaes & McGuire, 1985; Nacci, Teitelbaum & Prather, 1977; Wooldredge, Griffin & Pratt, 2001). It is possible that in overcrowded facilities prison surveillance of prisoners is minimized and therefore there are fewer infractions being given to inmates. Moreover, guards in overcrowded facilities may try to focus only on writing-up inmates for incidents that are particularly severe (Nacci, Teitelbaum & Prather, 1977). Minor incidents and disruptions to the facility are more likely to go unnoticed and unpunished.

H6 was also not supported. Facilities with a higher staff-to-inmate ratio are positively associated with the use of each form of solitary confinement. This could be explained by greater surveillance of prisoners, resulting in a greater number of infractions being given to inmates. Facilities with a larger number of staff in comparison to inmates are likely to have greater surveillance of the inmate population and likely be able to detect misconduct and violence; therefore they are more likely to respond to misconduct/violence with solitary confinement. Facilities with a greater difference between the number of staff and the number of inmates may be less likely to respond to violence or threats of violence due to the lack of full-time surveillance of inmates.

The findings supported H7. Facilities with a greater proportion of inmates with work assignments are positively associated with the use of all forms of solitary confinement. This is likely due to the fact that inmates involved in prison work are less likely to commit violence (Huebner, 2003; Butler & Steiner, 2017). It may also be due to the fact that inmates who are involved in prison activities and responsibilities are less likely to be perceived as a threat or high-risk, thereby making inmates involved in prison assignments less likely to be sanctioned to administrative segregation or disciplinary segregation.

H8 was also supported. Facilities with a greater number of assaults are positively associated with each from of solitary confinement. This is likely because inmates who commit violence in prison are more likely to be placed in disciplinary segregation and more likely to be perceived as a threat to prison safety and sanctioned with administrative segregation (Butler & Steiner, 2017; Steiner & Cain, 2016). Similarly, inmates with increased numbers of assaults are likely to have increased numbers of assault victims. Therefore, it is likely more inmates will be placed in protective custody.

H9, H11, and H12 were supported. Facilities with a greater proportion of inmates housed in restricted housing, administrative segregation, and protective custody are associated with an increase in the total number of assaults. This could be attributed to the negative effects solitary confinement has on an individual's mental health and behavior. Inmates returning from solitary have reported having higher levels of cognitive dysfunction, negative attitudes, rage, aggression, weakened inhibitions, a lack of self-preservation, and extremely violent tendencies (Haney, 2012; King, Steiner & Breach, 2008). This could result in an exacerbating effect on the rate of violence in a facility (Haney, 2012).

In contrast, H10 was not supported. Facilities with a greater proportion of inmates in disciplinary segregation are associated with a decrease in the total number of assaults. This could be reflective of the successful deterrent effect of disciplinary segregation, especially since solitary confinement has been found to result in inmates experiencing higher levels of apathy, fatigue and inactivity which could reduce their odds of misconduct (Morris, 2016). On the other hand, facilities with a higher proportion of inmates in disciplinary segregation having a negative effect on the total assault count could be reflective of the fact that violent inmates are incapacitated repetitively or for lengthy periods of time, resulting in reduced opportunities for assaults. It could also be reflective of prison administrators using administrative segregation or protective custody instead of disciplinary segregation. Disciplinary segregation is the only form of solitary confinement that requires due process rights for inmates and has a time limit on the duration of segregation (Frost & Monteiro, 2016). Once an inmate is written up for a disciplinary infraction, they are required to go through a prison disciplinary process in which a disciplinary committee must determine the validity of the accusation and the punishment sanctioned if an inmate is found guilty (Babcock, 1980). In contrast, decisions to place inmates in administrative

segregation and protective custody, and for how long, are completely up to the discretion of the prison administrators. Prison administrators may try to bypass the lengthy prison disciplinary process and use administrative segregation or protective custody to handle violence instead.

Consequently, the findings of the study highlighted many interesting variations in the impact of characteristics on each form of solitary confinement.

Disciplinary segregation. The disciplinary segregation count was influenced the most by the proportion of black inmates in a facility. Facilities with a greater proportion of black inmates were associated with an increase in the number of inmates housed in disciplinary segregation. Although the proportion of black inmates was also positively associated with the number of inmates housed in restricted housing and administrative segregation, disciplinary segregation had the highest odds ratio for the proportion of black inmates than any other form of solitary confinement. This could be attributed to racial bias amongst correctional staff and disciplinary committees (Crouch, 1985). Poole and Regoli (1979) found black inmates were more likely to receive a write up for rule infractions by correctional staff in comparison to white inmates. Additionally, disciplinary committees use prior record of rule infractions as the most significant determinant of punishment for black inmates, but use the type of rule infraction as the primary determinant of punishment for white inmates (Poole & Regoli, 1979). Therefore, black inmates are more likely to accumulate more rule infractions than white inmates and more likely to be sanctioned with disciplinary segregation because of those rule infractions. By contrast, white inmates are less likely to receive write ups and often receive less harsh punishment than black inmates after committing the same offense (Crouch, 1985; Poole & Regoli, 1979).

On the other hand, the number of inmates in disciplinary segregation could have been greatly affected by the proportion of black inmates due to the level of violence committed by

black inmates. Steiner and Wooldredge (2009) found minority inmates had higher rates of violent misconduct than white inmates. Similarly, a study conducted by Harer and Steffensmeir (1996) found black inmates significantly committed more violence than white inmates. Increased rates of violent misconduct could result in black inmates being sanctioned to disciplinary segregation more often than white inmates. The proportion of black inmates was also positively associated with the number of inmates housed in restricted housing and administrative segregation. This could be due to the fact that even when controlling for the type of offense, black inmates are more likely to be perceived as dangerous (Cochran, et al., 2018; Crawford, et al., 1998; Demuth & Steffensmeier, 2004; Warren, et al., 2012). Therefore, it is likely prison staff will sanction black inmates to restricted housing or administrative segregation since they are likely to perceive them as more of a threat to the safety of the prison community.

Administrative segregation. The number of inmates in administrative segregation was influenced the most by the staff-to-inmate ratio. Similar to the restricted housing count and disciplinary segregation count, facilities with a higher staff to inmate ratio were associated with an increase in the administrative segregation count. Interestingly, the administrative segregation count was the only solitary confinement measure that differed in how it was affected by the proportion of inmates in maximum custody. Facilities with a greater proportion of inmates in maximum custody were associated with a decrease in the number of inmates housed in administrative segregation. As mentioned above, it is possible that prison administrators are using disciplinary segregation or protective custody more than administrative segregation to control the behavior of high-risk offenders. Worrall and Morris (2011) found greater proportions of inmates in maximum custody are associated with greater rates of assault. This could result in prison administrators responding with disciplinary segregation, more than administrative

segregation, or the utilization of protective custody to separate inmates who are targeted more often in a facility with many maximum custody inmates. This could explain why protective custody has the highest odds ratio for the proportion of inmates in maximum custody in comparison to the other forms of solitary confinement.

Protective custody. The protective custody count was the most different from the other forms of solitary confinement. It was influenced the most in a positive direction by the staff-to-inmate ratio, similar to the restricted housing and administrative segregation count. However, it was negatively affected by the proportion of black inmates and was positively affected by facilities that housed female inmates. All other forms of solitary confinement were positively affected by the proportion of black inmates and negatively affected by facilities that housed female inmates. As mentioned above, this could be a result of the female inmates seeking protection from abusers through protective custody rather than attempting to go to federal court. And black inmates may be less likely to be placed into protective custody since they are less likely to be a victim of an assault because of their majority status in prison.

Contributions to research. The findings of this study highlight the effects of prison characteristics on solitary confinement and differences across various forms of confinement. Historically, most research regarding the use of solitary confinement was primarily focused on its adverse health effects on inmates (Smith, 2006; Steinbuch, 2014; Haney, 2018). Research regarding the impact of prison characteristics has only begun recently and has focused only on the effect of prison characteristics on violence in prisons (Steiner & Wooldredge, 2008; Worrall & Morris, 2011; Steiner, Butler & Ellison, 2014; Huebner, 2003; for an exception see Butler & Steiner, 2017). This study also adds to the literature by highlighting the effect of the use of solitary confinement on prison violence, and the differences across each form of confinement. A

common question in the solitary confinement literature is whether or not solitary confinement deters violence. This study highlights that restricted housing, administrative segregation, and protective custody have a positive effect on the level of violence in a facility, which brings attention to the fact that the majority of the different forms of solitary confinement are not successful in reducing violence and enhancing prison safety. Having a greater understanding on how solitary confinement affects violence/misconduct in a prison can lead to more effective alternatives being used in its place.

Limitations

Although this study successfully highlighted how various prison characteristics affect the use of solitary confinement and the amount of violence in a facility, there are a few limitations that warrant discussion. The first and biggest limitation of the study is that the data are cross-sectional instead of longitudinal. Therefore, it is impossible to determine the temporal order of the measures in the study. In other words, because of the cross-sectional quality of the data there is no way to definitively tell if violence in a facility is causing more use of solitary confinement, or if the use of solitary confinement is causing more violence. The results of this study are correlational and must be interpreted accordingly.

The second limitation of the study is the age of the data. The sample was drawn from the Census of State and Federal Adult Correctional Facilities conducted 15 years ago. The CSCFCF collects facility level data every five to seven years, however the latest available data drawn in 2012 contains limited variables. Therefore, the 2005 dataset was used for this study because it was the most comprehensive.

The third limitation of the study was the inability to measure the average age of inmates housed in solitary confinement. Age is one of the most common characteristics associated with

misconduct; younger inmates are more likely to commit violence than older inmates (Day, Bauer & Butler, 2015; Harer & Steffensmeier, 1996). This often results in younger inmates being placed in disciplinary segregation at a higher rate than older inmates (Steiner & Butler, 2017). The only questions in the 2005 CSCFCF survey for facilities relating to age consisted of the number of inmates below the age 18 and the number of inmates older than 18. This did not provide an accurate description of the age of inmates housed in solitary confinement and it was thus unable to be used as a variable.

Future research should use longitudinal data to achieve a more accurate understanding of the temporal relationships between measures. This will help determine the specific relationship between each form of solitary confinement and violence. Additionally, future research should utilize the most recent data available with the most comprehensive measures of prison characteristics. It would also be useful to assess the effect of both individual and prison level characteristics on the use of solitary confinement. This would grant a greater understanding of the types of individuals sanctioned to each form of solitary confinement based on various factors such as age, race, gender, and mental health.

Policy Recommendations

Even with the limitations of this study, the findings documented of the excessive use of solitary confinement in American prisons and the exacerbating effect solitary confinement has on the amount of violence in a facility. Based on the results of the study, recommendations for future policy coincide with the Standard Minimum Rules for the Treatment of Prisoners, also known as the Mandela Rules, which were approved by the United Nations Commission on Crime and Prevention and Criminal Justice in 2015. Solitary confinement should be used as a last resort (Clifford, et. al., 1972; Haney, 2018). The serious sanction of segregating an inmate

from the general population should only occur in extraordinary circumstances where there is no other alternative, and should accomplish a legitimate penological goal (Haney, 2018). In other words, the practice of administrative segregation and protective custody should be abandoned completely. This coincides with the results of this study since administrative segregation and protective custody were associated with a positive effect on violence in a facility. The only use of solitary confinement should be disciplinary segregation and it should only be used after all other alternatives have failed. Alternative sanctions can include restricting the movement of an inmate housed in the general population, reducing the privileges available to an inmate, or requiring an inmate's attendance to specific programming or counseling (Browne, Cambier & Agha, 2011).

When solitary confinement is imposed it must follow the guidelines disclosed in rule 41-46 of the Mandela Rules. Rule 41 states all allegations of a disciplinary offense by a prisoner must be reported swiftly to the capable authority and promptly investigated. The accused prisoner will be informed of the nature of the accusation in a swift and understandable manner and will be given sufficient time and resources to prepare his/her defense. Prisoners will be entitled to the right to defend themselves in person, have access to a legal adviser, the assistance of an interpreter if necessary, and the right to seek judicial review of disciplinary sanctions imposed. If the inmate's disciplinary infraction is prosecuted as a crime, they will be entitled to all due process rights guaranteed in a criminal proceeding. Rule 42 addresses the living conditions permitted to all segregated inmates. All inmates regardless of what unit they are housed in will be provided proper nutrition, sanitation, access to open air and exercise, personal hygiene, health care, ventilation, temperature, drinking water, and personal space (Clifford, et. al., 1972).

Rules 43 and 44 specify restrictions on the duration and treatment of inmates in solitary confinement. Solitary confinement is referred to as the confinement of prisoners for 22 hours or more without any meaningful human contact in a day. No period of confinement is permitted to be longer than 15 consecutive days. Confinement is prohibited from taking place in a cell that is constantly dark or constantly lit. Prisoners sanctioned with solitary confinement for disciplinary or restrictive measures may only be restricted from family contact for a limited amount of time. Rule 45 states the use of solitary confinement is only applicable to extreme cases and is to be used as a last resort for as short of a period as possible. All sanctions of solitary confinement are subject to independent review by a competent authority. The use of solitary confinement for inmates with mental or physical disabilities is prohibited if the measures will result in exacerbating the inmate's condition. Female inmates who are pregnant or require post-natal care are prohibited from being sanctioned with solitary confinement (Clifford, et. al., 1972).

Rule 46 highlights the importance of prisoners' mental health as they experience solitary confinement. Health-care personnel are responsible for the monitoring of the mental health of inmates in solitary confinement on a daily basis. They are also responsible for providing medical assistance and treatment to inmates in solitary at the request of the inmate or a facility staff member. Any adverse effects of solitary confinement on an inmate's mental or physical health observed by the health-care personnel must be reported to a supervisor/director promptly. Health-care personnel have the power to review and recommend changes to the confinement and are also responsible for advising the supervisor/director if they believe the confinement should be terminated or altered for the sake of an inmate's health (Clifford, et. al., 1972).

Placing stricter regulations on the use of solitary confinement will not only improve the health of incarcerated populations, but also will reduce the level of violence in prison. Although

the findings of this study did not show the temporal order of the relationship between solitary confinement and violence, the results did show the use of restricted housing, administrative segregation, and protective custody were positively associated with assaults in a facility. This brings attention to the failing of solitary confinement to improve the safety of prisons. Therefore, the use of solitary confinement should be at an absolute minimum and should only be in the form of disciplinary segregation, in which the inmate is afforded due process and the rights highlighted above. In addition, reducing the duration of solitary confinement will improve recidivism rates of offenders post-release. High recidivism rates are associated with inmates who experience lengthy periods of solitary confinement (Steinbuch, 2014). The more incarcerated individuals are able to engage in social interaction, prison programming, and mental health treatment, the more likely they will be successful reentering society.

References

Adams, K. (1986). The disciplinary experiences of mentally disordered inmates. Criminal Justice and Behavior, 13, 297–316.

Anderson, E. (1999). Code of the street: Decency, violence, and the moral life of the inner city. New York: W. W. *W. Norton*.

Babcock, W. (1980). Due process in prison disciplinary proceedings. *BCL Rev.*, *22*, 1009.

Bales, W. D., & Miller, C. H. (2012). The impact of determinate sentencing on prisoner misconduct. *Journal of Criminal Justice*, *40*(5), 394-403.

Bales, W. D., & Piquero, A. R. (2012). Racial/ethnic differentials in sentencing to incarceration. *Justice Quarterly*, *29*(5), 742-773.

Britt, C. L. (2000). Social context and racial disparities in punishment decisions. *Justice Quarterly*, *17*(4), 707-732

Browne, A., Cambier, A., & Agha, S. (2011). Prisons within prisons: The use of segregation in the United States. *Federal Sentencing Reporter*, *24*(1),46-49

Burke, P. J., & Turk, A. T. (1975). Factors affecting postarrest dispositions: A model for analysis. *Social Problems*, *22*(3), 313-332.

Butler, H. D., & Steiner, B. (2017). Examining the use of disciplinary segregation within and across prisons. *Justice Quarterly*, *34*(2), 248-271.

Butler, H. D., Steiner, B., Makarios, M. D., & Travis III, L. F. (2017). Assessing the effects of exposure to supermax confinement on offender postrelease behaviors. *The Prison Journal*, *97*(3), 275-295.

Carroll, L. (1974). *Hacks, blacks, and cons: Race relations in a maximum security prison*. Lexington, MA: Lexington Books.

Celinska, K., & Sung, H. E. (2014). Gender differences in the determinants of prison rule violations. *The Prison Journal*, *94*(2), 220-241.

Clifford, W., Van der Vaart, J., Boyd, S. M., Hollander, R., Fried, J. H., & Freeman, A. V. (1972). The standard minimum rules for the treatment of prisoners. *The American Journal of International Law*, *66*(4), 232-244.

Cloud, D. H., Drucker, E., Browne, A., & Parsons, J. (2015). Public health and solitary confinement in the United States. *American Journal of Public Health*, *105*(1), 18-26.

Crawford, C., Chiricos, T., & Kleck, G. (1998). Race, racial threat, and sentencing of habitual offenders. *Criminology*, *36*(3), 481-512.

Cochran, J. C., Toman, E. L., Mears, D. P., & Bales, W. D. (2018). Solitary confinement as punishment: Examining in-prison sanctioning disparities. *Justice Quarterly*, *35*(3), 381-411.

Collins, W. C. (2004). *Supermax prisons and the Constitution: Liability concerns in the extended control unit*. US Department of Justice, National Institute of Corrections.

Colvin, M. (1992). The penitentiary in crisis: From accommodation to riot in New Mexico. Albany, NY: SUNY Press.

Crouch, B. M. (1985). The significance of minority status to discipline severity in prison. *Sociological Focus*, *18*(3), 221-233.

Day, J. C., Brauer, J. R., & Butler, H. D. (2015). Coercion and social support behind bars: Testing an integrated theory of misconduct and resistance in US prisons. *Criminal Justice and Behavior*, *42*(2), 133-155

Demuth, S., & Steffensmeier, D. (2004). Ethnicity effects on sentence outcomes in large urban courts: Comparisons among White, Black, and Hispanic defendants. *Social Science Quarterly*, *85*(4), 994-1011.

DiIulio, J. J. (1990). *Governing prisons*. Simon and Schuster. 18-33.

Ekland-Olson, S., Barrick, D. M., & Cohen, L. E. (1983). Prison overcrowding and disciplinary problems: An analysis of the Texas prison system. *The Journal of Applied Behavioral Science*, *19*(2), 163-176.

Engen, R. L., & Gainey, R. R. (2000). Modeling the effects of legally relevant and extralegal factors under sentencing guidelines: The rules have changed. *Criminology*, *38*(4), 1207-1230.

Flanagan, T. J. (1982). Discretion in the prison justice system: A study of sentencing in institutional disciplinary proceedings. *Journal of Research in Crime and Delinquency*, *19*(2), 216-237.

Freeman, R. M. (2003). Social distance and discretionary rule enforcement in a women's prison. *The Prison Journal*, *83*(2), 191-205.

Frost, N., & Monteiro, C. (2016). *Administrative segregation in US prisons*. Washington, DC: US Department of Justice, Office of Justice Programs, National Institute of Justice.

Gaes, G. G., & McGuire, W. J. (1985). Prison violence: The contribution of crowding versus other determinants of prison assault rates. *Journal of research in crime and delinquency*, *22*(1), 41-65.

Gendreau, P., Tellier, M. C., & Wormith, J. S. (1985). Protective custody: The emerging crisis within our prisons. *Fed. Probation*, *49*, 55.

Grassian, S., & Friedman, N. (1986). Effects of sensory deprivation in psychiatric seclusion and solitary confinement. *International journal of law and psychiatry*, *8*(1), 49-65.

Hackshaw, A. (2008). Small studies: strengths and limitations.*ERS Journals*. 1141-1143.

Haney, C. (2009). The social psychology of isolation: Why solitary confinement is psychologically harmful. *Prison Service Journal*, *181*(1), 12-20.

Haney, C. (2012). Prison effects in the era of mass incarceration. *The Prison Journal*.

Haney, C. (2018). Restricting the use of solitary confinement. *Annual Review of Criminology*, *1*, 285-310.

Harer, M. D., & Steffensmeier, D. J. (1996). Race and prison violence. *Criminology*, *34*(3), 323-355.

Helling v. McKinney. (n.d.). *Oyez*. Retrieved March 16, 2020, from https://www.oyez.org/cases/1992/91-1958

Huebner, B. M. (2003). Administrative determinants of inmate violence: A multilevel analysis. *Journal of Criminal Justice*, *31*(2), 107-117.

Human Rights Watch. (2000). Out of sight: Super-maximum security confinement in the United States. *Human Rights Watch*, *12*(1), 1-9.

Irwin, J., & Cressey, D. R. (1962). Thieves, convicts and the inmate culture. *Social problems*, *10*(2), 142-155.

King, R. D. (1999). The rise and rise of supermax: An American solution in search of a problem?. *Punishment & Society*, *1*(2), 163-186.

King, K., Steiner, B., & Ritchie Breach, S. (2008). Violence in the supermax: A self-fulfilling prophecy. *The Prison Journal*, *88*(1), 144-168.

Miller, H. A., & Young, G. R. (1997). Prison segregation: administrative detention remedy or mental health problem?. *Criminal Behaviour and Mental Health*, *7*(1), 85-94.

Morris, R. G. (2016). Exploring the effect of exposure to short-term solitary confinement among violent prison inmates. *Journal of Quantitative Criminology*, *32*(1), 1-22.

Nacci, P., H. Teitlebaum, and J. Prather. 1977. "Population Density and Inmate Misconduct Rates in the Federal Prison System." Federal Probation 41:26-31.

O'Keefe, M. L. (2008). Administrative segregation from within: A corrections perspective. *The Prison Journal*, *88*(1), 123-143.

Park, J. J. (2000). Redefining Eighth Amendment punishments: A new standard for determining the liability of prison officials for failing to protect inmates from serious harm. *Quality of Life Research*, *20*, 407-466.

Piecora, C. (2014). Female inmates and sexual assault. *Jurist Twenty*

Pierson, T. A. (1990). Social and psychological correlates of protective custody (PC) status: a comparison of PCs and non-PCs. *Journal of Offender Counseling Services Rehabilitation*, *14*(1), 97-120.

Poole, E. D., & Regoli, R. M. (1979). Race, institutional rule breaking, and disciplinary response: A study of discretionary decision making in prison. *Law & Soc'y Rev.*, *14*, 931

Shames, A., Wilcox, J., & Subramanian, R. (2015). Vera Institute of Justice. *Solitary Confinement: Common Misconceptions and Emerging Safe Alternatives*.

Sherman LW (1993) Defiance, deterrence, and irrelevance: a theory of the criminal sanction. J Res Crim Delinq 30:445–473

Smith, P. S. (2006). The effects of solitary confinement on prison inmates: A brief history and review of the literature. *Crime and justice*, *34*(1), 441-528.

Steffensmeier, D., Ulmer, J., & Kramer, J. (1998). The interaction of race, gender, and age in criminal sentencing: The punishment cost of being young, black, and male. *Criminology*, *36*(4), 763-798

Steinbuch, A. T. (2014). The movement away from solitary confinement in the United States. *New Eng. J. on Crim. & Civ. Confinement*, *40*, 499.

Steiner, B. (2008). *Maintaining prison order: Understanding causes of inmate misconduct within and across Ohio correctional institutions* (Doctoral dissertation, University of Cincinnati). 1-4.

Steiner, B. (2009). Assessing static and dynamic influences on inmate violence levels. *Crime & delinquency*, *55*(1), 134-161

Steiner, B., & Cain, C. M. (2016). The relationship between inmate misconduct, institutional violence, and administrative segregation: A systematic review of the evidence. *Restrictive housing in the US: Issues, challenges, and future directions*, 165-197.

Steiner, B., & Wooldredge, J. (2013). Implications of different outcome measures for an understanding of inmate misconduct. *Crime & Delinquency*, *59*(8), 1234-1262

Steiner, B., & Wooldredge, J. (2009). The relevance of inmate race/ethnicity versus population composition for understanding prison rule violations. *Punishment & Society*, *11*(4), 459-489.

Steiner, B., & Wooldredge, J. (2008). Inmate versus environmental effects on prison rule violations. *Criminal Justice and Behavior*, *35*(4), 438-456

Steiner, B., Butler, H. D., & Ellison, J. M. (2014). Causes and correlates of prison inmate misconduct: A systematic review of the evidence. *Journal of Criminal Justice*, *42*(6), 462-470.

Stone, A. (2017). Protective Custody Inmates. *Integrated Studies*. 32. 2-50.

Sykes, G. M. (1956). Men, merchants, and toughs: A study of reactions to imprisonment. *Soc. Probs.*, *4*, 130.

Thornberry, T. P. (1973). Race, socioeconomic status and sentencing in the juvenile justice system. *J. Crim. L. & Criminology*, *64*, 90.

United States Department of Justice. Bureau of Justice Statistics. (2005). Census of State and Federal Adult Correctional Facilities. Ann Arbor, MI: *Inter-university Consortium for Political and Social Research.*

Useem, B. (1985). Disorganization and the New Mexico prison riot of 1980. American Sociological Review, 50, 677-688.

Vasiliades, E. (2005). Solitary Confinement and International Human Rights: Why the US prison system fails global standards. *Am. U. Int'l L. Rev.*, *21*, 71.

Warren, P., Chiricos, T., & Bales, W. (2012). The imprisonment penalty for young Black and Hispanic males: A crime-specific analysis. *Journal of Research in Crime and Delinquency*, *49*(1), 56-80.

Wolff v. McDonnell. (n.d.). *Oyez*. Retrieved March 16, 2020, from https://www.oyez.org/cases/1973/73-679

Wooldredge, J., Griffin, T., & Pratt, T. (2001). Considering hierarchical models for research on inmate behavior: Predicting misconduct with multilevel data. *Justice Quarterly*, *18*(1), 203-231.

Wooldredge, J., & Smith, P. (Eds.). (2018). *The Oxford handbook of prisons and imprisonment*. Oxford University Press. 245-248.

Worrall, J. L., & Morris, R. G. (2011). Inmate custody levels and prison rule violations. *The Prison Journal*, *91*(2), 131-157.