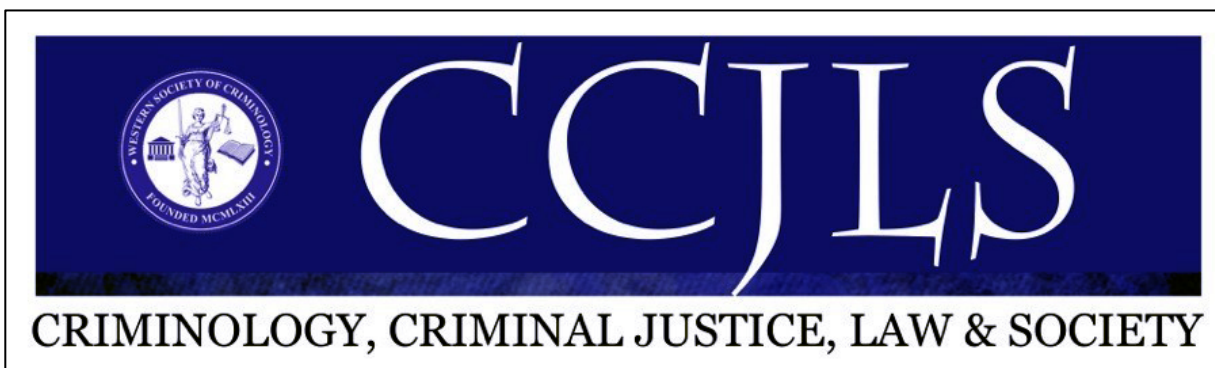




E-ISSN 2332-886X

Available online at

<https://scholasticahq.com/criminology-criminal-justice-law-society/>

“Older” Inmates in Prison: Considering the Tipping Point of Age and Misconduct

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ABSTRACT AND ARTICLE INFORMATION

Sentencing reforms since the 1990s have created an environment in which inmates have been aging in place. This has created challenges for correctional administrators on how to house and manage older offenders in a safe and secure environment. Previous research has found that the likelihood of committing misconduct in prison decreases with age, suggesting elderly inmates are least likely to engage in prison misconduct. Yet, the operationalization of “elderly” has varied across studies, failing to provide a general consensus of the onset of being elderly. With this in mind, the purpose of this study was to determine at what age prison misconduct begins to decline using data from the Arkansas Department of Corrections (ADC). A series of binary logistic regressions were conducted on a sample of 4,793 inmates, who had a minimum of two years (730 days) in prison and were released in 2013 and 2014. In the sample of reentering inmates, it was found that misconduct became significantly less likely amongst inmates older than 40 years old. Further, group-specific models demonstrated that correlates significant for predicting misconduct in younger reentering inmates differed from those older than 40 years. By identifying when institutional misconduct decreases, correctional agencies can improve their efficiency in housing, managing, and treating aging inmates.

Article History:

Received July 13th, 2019

Received in revised form April 28th, 2020

Accepted May 4th, 2020

Keywords:

aging inmates, corrections, prison misconduct, aging reentry

As of 2016, over 1.5 million inmates were incarcerated in federal and state correctional facilities (Carson, 2018). Although this represents a .7% decrease from a decade ago (Kaeble & Cowhig, 2018), the prevailing outcomes of sentencing reforms such as the three strikes law, truth in sentencing, and mandatory minimums have created a prison context in which inmates are aging in place (i.e., getting older in prison; Blumstein, 1988; Carson, 2018; Petersilia, 1981; Tonry & Petersilia, 1999). Simultaneously, over the past decade, crimes committed by the “elderly” in the United States, United Kingdom, Australia, Japan, and other nations have increased (Aday & Krabill, 2006; Paddock, 2014; Trotter & Baidawi, 2015). The ever-growing “older” inmate population has created debate within correctional management as to how to house and manage these offenders (Johnson, 1988; Wangmo et al., 2017; Williams & Abraldes, 2007).

Correctional administrators face a number of challenges in regard to sustaining a prison environment that is secure and safe for inmates and correctional officers (Blowers & Blevins, 2015). One of the more daunting tasks is to prevent inmate misconduct, protect inmates and staff from victimization, and dole out consistent disciplinary outcomes. To address these issues, correctional administrators must be mindful of inmate characteristics, such as age and offender type, that demonstrate greater proclivity towards institutional misconduct, while recognizing offender characteristics that are more susceptible to prison victimization, such as older inmates (Kerbs & Jolley, 2009).

Elderly inmates are one of the fastest growing prison populations in the United States (Carson, 2015; B. A. Williams, Stern, et al., 2012), yet there is a lack of consensus on how to define this population (Aday, 2003; Blowers & Blevins, 2015; McShane & Williams, 1990; Phillips et al., 2011; Synder et al., 2009; B. A. Williams, Stern et al., 2012). In most prior studies, however, age has been utilized as a control variable, which does not account for the contextual factors surrounding age and how age affects inmates’ adjustment to prison. When age was the focus of inmate research, the lack of consensus on what defined an “older” or “elderly” inmate has made it difficult to compare research findings. The age cutoffs used to define older inmates have ranged from 40 to over 65 (Aday, 2003; McShane & Williams, 1990; Phillips et al., 2011; B. A. Williams, Stern et al., 2012). This issue is particularly salient when examining patterns of inmate misconduct, as previous research has found age to be one of the primary predictors of prison misconduct (Camp et al., 2003; Cihan & Sorensen, 2019; Drury & DeLisi, 2010; Hilinski-Rosick & Freiburger, 2016; Kuanliang & Sorensen, 2008;

McShane & Williams, 1990; Steiner et al., 2014; Steiner & Wooldredge, 2008, 2014b; Valentine et al., 2015). Moreover, the varying age cutoffs raise questions of generalizability and the applications of these studies to inmates who have been defined as “old” in previous research.

With this in mind, continuous and categorical operationalizations of age were used to identify at which point age no longer poses a risk. This will allow correctional administrators to ascertain when inmates become less of a threat to staff and other inmates. In addition, correctional agencies may be able to reduce their operational costs and lessen elderly inmate victimization by segregating the elderly population into separate housing units. To accomplish this, data from the Arkansas Department of Corrections (ADC) were utilized. The sample included 4,793 inmates who served a minimum of two years (730 days) in prison and were released back into the community in 2013 and 2014. A series of binary logistic regressions were used to examine the importance of age in predicting the prevalence of prison misconduct. By determining at what age misconduct begins to decline, correctional administrations can find more efficient ways to house, manage, and treat this population of inmates separate from the general population. This is likely to not only assist the “elderly” inmate population against victimization, but also decrease technical violations against this group.

Literature Review

The Elderly and Prison

There are generally two pathways by which the elderly find themselves in prison. Longer prison stays have resulted in a greater number of individuals who have aged while incarcerated (Porter et al., 2016), resulting in the “graying” of American prisons. Length of stay in prison has expanded over the past three decades due to a number of punitive sentencing laws that have been implemented to prevent reoffending, such as mandatory sentencing and truth-in-sentencing laws. These legislative actions have increased the length of prison time for a variety of offenses (Chen, 2008; Edwards, 1999; Mauer, 2006; Meierhoefer, 1992; Shepherd, 2002).¹

A second path by which the “elderly” find themselves in prison is by committing prison-eligible offenses later in life. Although it has long been accepted that crimes are most often committed by young individuals (15-25 years of age), the age-crime curve varies across offense categories and over time (Aday & Krabill, 2006; Barak et al., 1995; Midwinter, 1990; Steffensmeier et al., 1989).² From 1993 to 2003, the 55 and older state prison population rose by 400%

(Carson & Sabol, 2016), and more than 550,000 people who were 55 and older were arrested each year (Snyder, 2012). Some scholars have speculated that demographic shifts are responsible for the increase in crime committed by the elderly, as baby-boomers continue to live longer than previous generations (Blowers, 2015; Porter et al., 2016). Others have suggested boredom, social isolation, financial instability, dementia, and other physical changes in the brain are likely to account for older people (50 years or older) committing crimes later in life (Aday & Krabill, 2006; Blowers, 2015; Patel, 2011; Payne, 2003). Some researchers have argued that the opportunities to commit various types of crimes simply increase with age, such as domestic assault arising from the onset of marriage or embezzlement and fraud opportunities occurring as people obtain and maintain employment (Steffensmeier et al., 1989). In addition, the discretion of police and courtroom actors (lenient or harsher treatment) may affect older people's involvement within the criminal justice system (Aday & Krabill, 2006, 2012). Regardless, the number of older inmates is increasing, and it is important to determine how older inmates in prison will behave to better house and manage this population.

Factors Associated with Prison Misconduct

Misconduct has been viewed as an indicator of maladjustment to prison (DiIulio, 1987; Van Voorhis, 1994), and two primary theoretical perspectives have been utilized to explain prison maladjustment, specifically in regard to prison violence. The importation model suggests that offenders bring subculture attitudes and meanings into the prison that lead to violence (Irwin & Cressey, 1962). These are typically individual-level factors, which include an inmate's race, criminal history, substance use history, and age (Gaes & McGuire, 1985; Poole & Regoli, 1983). Conversely, the deprivation model attributes misconduct to institutional- and individual-level factors that deprive inmates of certain freedoms (e.g., autonomy, space, relationships, and opportunities). Deprivation models attribute misconduct to variables such as visitation, overcrowding, involvement in programs, rule enforcement, and other factors that were not present to the individual before incarceration (Gaes & McGuire, 1985; McCorkle et al., 1995). For the purpose of the study, the focus was primarily on the individual-level factors that have been associated with misconduct in prison.

Many factors have been associated with inmate misconduct, but the most frequently examined factors are demographic measures such as gender, race, and age. Previous research has indicated that

gender does not affect the propensity to commit certain types of misconduct in prison (Camp et al., 2003; Drury & DeLisi, 2010; Kuanliang & Sorensen, 2008), whereas other studies have found that males engage in higher rates of prison infractions than females, specifically serious infractions (Celinska & Sung, 2014; Harer & Langan, 2001; Reidy & Sorensen, 2018). Nevertheless, the majority of studies have found that male and female misconducts only differ slightly (Cunningham et al., 2011; Drury & DeLisi, 2010; Steiner & Wooldredge, 2014b) and that there were more similarities than differences amongst predictors of male and female misconduct (Steiner & Wooldredge, 2014b). In addition, the impact of race on misconduct has been inconclusive (Camp et al., 2003; Drury & DeLisi, 2010; Kuanliang & Sorensen, 2008; Schenk & Fremouw, 2012; Steiner & Wooldredge, 2008; Tewksbury et al., 2014; Worrall & Morris, 2011). There have been limitations in previous research, due to factors such as the lack of race variability in samples and consistency in the measurement of race, that have made it difficult to distinguish the effect of race on misconduct (Schenk & Fremouw, 2012). However, some researchers have found that minorities have a higher likelihood to partake in violent misconduct in prison compared to their white counterparts (Berg & DeLisi, 2006; Kuanliang & Sorensen, 2008; Lahm, 2016; Steiner & Wooldredge, 2008).

Age, on the other hand, has been widely recognized as the strongest predictor of misconduct in prison (Camp et al., 2003; Cihan & Sorensen, 2019; Drury & DeLisi, 2010; Kuanliang & Sorensen, 2008; Hilinski-Rosick & Freiburger, 2016; McShane & Williams, 1990; Steiner et al., 2014; Steiner & Wooldredge, 2008, 2014b; Valentine et al., 2015). Previous research has repeatedly found that the likelihood of committing misconduct in prison decreases as inmates get older (Blowers & Blevins, 2015; Drury & DeLisi, 2010; Steiner & Wooldredge, 2008, 2014b). In fact, Kuanliang and Sorensen (2008) found that the age-misconduct relationship was similar to the classic age-crime curve, in which misconduct decreases as individuals grew older. This finding remained consistent when examining different types of misconduct (Blowers & Blevins, 2015). Findings were similar for self-reported data as Steiner and Wooldredge (2014a) found that older inmates were less likely to self-report partaking in assaults or drug-related misconduct; however, age was not a significant predictor of self-reported theft-related misconduct.

Another important factor that has been associated with misconduct is maturation in prison due to the length of incarceration—aging during incarceration (Cunningham & Sorensen, 2006b; Flanagan, 1980; Morris et al., 2010; Toch & Kupers,

2007). For instance, it has been found that individuals serving long-term sentences have lower misconduct incidents than those serving short-term sentences (Cunningham & Sorensen, 2006b; Morris et al., 2010; Reidy & Sorensen, 2018), especially among older inmates (Flanagan, 1980; Hilinski-Rosick & Freiburger, 2016). Improved institutional behavior can be attributed to “maturation and adaptation” to prison life (Toch & Kupers, 2007); however, some argue that inmates serving lengthy prison terms are more likely to become complacent, trying to co-exist with prison administrators (Cunningham et al., 2016; Flanagan, 1980).

In addition, a number of other individual-level factors have been explored to understand prison misconduct such as offense type, prior conviction, and criminal history. Thus far, studies have garnered mixed results on the impact of these variables on prison infractions. Some research has found that violent offenders are more likely to engage in prison assaults (Schenk & Fremouw, 2012; Steiner, 2009); however, others have either found a lack of relationship (Drury & DeLisi, 2010; Harer & Langan, 2001) or a negative relationship between inmates convicted of a violent offense and their institutional misbehavior (Cunningham et al., 2011; Edens et al., 2005; Steiner et al., 2014). Research has also indicated that property offenders are more likely to engage in prison infractions than any other offense type (Cihan & Sorensen, 2019; Cunningham et al., 2005). In addition, the impact of previous incarceration and criminal history has garnered mixed results (Cunningham & Sorensen, 2006a, 2010; Tewksbury et al., 2014); however, a positive relationship between criminal history and institutional infractions has often been found in prior research (Berg & DeLisi, 2006; Cihan & Sorensen, 2019; DeLisi & Munoz, 2003; Flanagan, 1983). Overall, the strongest and consistent predictor of misconduct in prison has been age, which was the focus of this study.

Prison Misconduct and Age

Prison confinement of inmates of all ages has been a complex concern for many correctional administrators. Toch (1985) argued that the increased rate of prison confinement has created a “warehousing” effect, where inmates are denied services, treatment programs, and basic daily necessities due to overcrowding and limited resources. Other studies have found that overcrowding can generate an atmosphere that hinders adaptation to prison life – augmenting the likelihood of suicide (Huey & McNulty, 2005), violent behaviors and correctional infractions (Paulus & McCain, 1983), and the reduction of psychological well-being and self-esteem (Lawrence & Andrews, 2004). In addition,

inmates are likely to have experienced past developmental determinants such as poverty, limited access to health care, sporadic to non-existent access to social services, substance and alcohol addictions, high-risk behaviors, and negative familial and social situations (Maschi et al., 2013; Visser & Travis, 2003). Moreover, older prisoners tend to have more physical and mental health disorders or diseases simply because of their chronological age (Aday, 2003; Nowotny et al., 2016). They are confronted with health issues that are rarely experienced by younger inmates, such as dementia, arthritis, hearing loss, mobility issues, and other disorders that make it difficult for them to perform activities of daily living (ADLs) such as eating, walking, and dressing (Aday, 2003; Maschi et al., 2013; B. A. Williams et al., 2006).

In general, the rapid aging of prisoners causes many challenges for correctional facilities (Bolano et al., 2016; Combalbert et al., 2018; Heidari et al., 2017; Maschi et al., 2011; Maschi et al., 2013; Novitsky, 2018; Phillips et al., 2011; Skarupski et al., 2018). Only about four percent of correctional facilities have health services designed for geriatric inmates (Maschi et al., 2013) and environmental restraints in the prison setting, such as limited access to food suitable for dietary needs (Buskey et al., 2015; Sullivan et al., 2016), wheelchair ramps, handrails, and other handicap assistance devices (Crawley, 2005; Mara, 2002). In addition, delayed prescription changes (Sullivan et al., 2016) can negatively affect the health and well-being of older inmates who suffer from chronic conditions. Correctional facilities often are not designed for or able to address the needs of people with functional or mental impairments (Crawley, 2005; Heidari et al., 2017; Mara, 2002; Maschi et al., 2013; Nowotny et al., 2016; Ruggiano et al., 2016; B. A. Williams et al., 2006). Inmates with functional impairments (e.g., hearing, mobility, vision, etc.) or mental impairments (e.g., dementia, mental illness, etc.) have a difficult time conducting their ADLs and obeying orders (Maschi et al., 2013; Trotter & Baidawi, 2015; B. A. Williams et al., 2006). As a result, these inmates have to rely on other inmates for help and are written up for behavioral and rule infractions (Blowers & Blevins, 2015; Maschi et al., 2013; Novitsky, 2018; B. A. Williams et al., 2006).

In summary, age has consistently been a strong predictor of prison misconduct; however, scholars often treat this variable as a control with little attention to the potential complexity of its relationship with misconduct. Further, age has been measured inconsistently across studies (e.g., Steiner et al., 2014). Although researchers frequently measure age as a continuous variable (Camp et al., 2003; Drury & DeLisi, 2010; Langan & Pelissier, 2001; Morris et al., 2010; Worrall & Morris, 2011), some studies have

categorized age into age-specific groups (i.e., late adulthood, very late adulthood, and oldest old; Berk et al., 2006; Bishop & Merten, 2011; Houser et al., 2012; Felson et al., 2012). In addition, studies have dichotomized their samples into two different age groups (i.e., younger and older; Grant, 1999; Leigey & Hodge, 2012; Loeb & Steffensmeier, 2006;). When dichotomizing age, researchers tend to identify older and younger inmate populations based on how they operationalized old or young, which is often an outcome of mean age distributions or intuitive notions of aging. Therefore, it is difficult to identify the elderly inmate population in prison due to the lack of consensus on age-related operationalizations (Aday, 2003; Loeb & Steffensmeier, 2006; McShane & Williams, 1990; Phillips et al., 2011; B. A. Williams, Stern et al., 2012).

Despite the lack of consensus on how to define older inmates, it has been repeatedly found that as inmates get older, their likelihood of committing prison misconduct decreases (Blowers & Blevins, 2015; Cihan & Sorensen, 2019; Drury & DeLisi, 2010; Hilinski-Rosick & Freiburger, 2016; Steiner et al., 2014; Steiner & Wooldredge, 2008, 2014a). They are, however, likely to receive technical violations because they have difficulty obeying orders due to aging impairments (Maschi et al., 2013; B. A. Williams et al., 2006). Correctional facilities that focus on housing the general inmate population are rarely equipped to handle mental and physical ailments exhibited among the “aging” inmate population (Aday, 2003; Maschi et al., 2013; B. A. Williams et al., 2006). As a result, this can increase the risk of older inmates receiving technical violations. In addition, correctional officials have the responsibility to protect inmates from victimization by other inmates. They can be held civilly liable if they fail to protect inmates in instances where the agency disregarded the risk posed to certain inmates (*Farmer v. Brennan*, 1994). One possible solution to alleviate this concern includes geriatric units or whole institutions that house older inmates (Kerbs & Jolley, 2009). In theory, these custodial units could house offenders who are less prone to commit institutional misconduct, thus, lessening the victimization or threat within this vulnerable population. However, there is still an on-going debate surrounding how to properly house this population (Wangmo et al., 2017).

The current study contributes to previous research by determining at what age range misconduct begins to decline for practical and efficient deployment of correctional officers and staff. Segregating this population may reduce security needs, and correctional administration may find more efficient ways to house and manage this population of inmates.

As previously mentioned, the age variable is often either used as a control variable or measured differently in statistical models, which makes it difficult to identify at what age misconduct begins to decline due to the lack of consensus on age-related definitions (Aday, 2003; Loeb & Steffensmeier, 2006; McShane & Williams, 1990; Phillips et al., 2011; B. A. Williams, Stern et al., 2012). Thus, age categories were used to isolate a tipping point of prison misconduct by age to provide correctional administrations an age range in which older inmates can be housed accordingly and suggestions on how to measure age in future studies examining inmate misconduct.

Method

Sample

Multiple age ranges were used to define older inmates and identify any substantial differences in misconduct between these definitions. Specifically, the purpose of this study was to identify an age range tipping point for the likelihood of committing misconduct or the lack thereof. The sample included all male inmates released from the Arkansas Department of Corrections in 2013 and 2014, who served a minimum of 730 days (approximately two years) in prison. The analytic sample included 4,793 inmates. All inmate information derived from a dataset provided by the Arkansas Department of Corrections (ADC). Before the utilization of these data, Institutional Review Board (IRB) approval was sought, and the research was deemed exempt. Due to the lack of consensus on what the age cutoff should be for older inmates (e.g., 40 to over 65), the data were divided into age groups based on four cutoffs (40, 45, 50, and 55 years). The age groups used were categorized as 40 and Older ($n = 1,918$), 39 and under ($n = 3,181$), 45 and Older ($n = 1,312$), 44 and under ($n = 3,787$), 50 and Older ($n = 793$), 49 and under ($n = 4,306$), 55 and Older ($n = 369$), and 54 and under ($n = 4,730$).

Measures

Dependent Variable: Misconduct

The dependent variable, misconduct, was a binary measure focusing on whether or not an inmate was found guilty of infractions over the two years prior to their release. This variable included violent, property, drug, and technical violations. The number of incidents per inmate ranged from 0 to 32, with an average of 0.98. Approximately three out of every five inmates in the sample ($n = 2,931$; 59%) incurred no misconduct events over the measured time period (see

Table 1). The remaining 41% ($n = 2,042$) of inmates had at least one reported misconduct over their final two years of incarceration.

Individual-level Members

Guided by previous research, 12 individual-level characteristics were used that were theoretically or empirically relevant to prison misconduct. These

variables included demographics, marital status, number of dependents, offender-type, number of prior incarcerations, and the current length incarceration. As indicated previously, the sample only included male offenders. Female inmates were omitted due to a lack of observations. The race variable was coded as dichotomous, with White inmates making up nearly 52% ($n = 2,565$) and 2,408 (48%) nonwhite offenders (see Table 1). The age of inmates ranged from 18 to

Table 1: Descriptive Statistics

Variable	<i>f</i>	%		
Misconduct (in 2 Years Before Release)				
<i>No Misconduct</i>	2,931	58.94		
<i>Misconduct</i>	2,042	41.06		
Race				
<i>White</i>	2,565	51.58		
<i>Nonwhite</i>	2,408	48.42		
Marital Status				
<i>Never Married</i>	2,903	58.38		
<i>Married</i>	990	19.91		
<i>No Longer Married</i>	1,080	21.72		
Violent Offender				
<i>No Violent Offenses</i>	3,326	66.88		
<i>Violent Offense</i>	1,647	33.12		
Property Offender				
<i>No Property Offenses</i>	2,436	48.98		
<i>Property Offense</i>	2,537	51.02		
Sex Offender				
<i>No Sex Offenses</i>	4,221	84.88		
<i>Sex Offense</i>	752	15.12		
Drug Offender				
<i>No Drug Offenses</i>	2,322	46.69		
<i>Drug Offense</i>	2,651	53.31		
Other Offender				
<i>No Other Offenses</i>	2,794	56.18		
<i>Other Offenses</i>	2,179	43.82		
	<i>M</i>	<i>SD</i>	Min	Max
Age	37.47	10.498	18	82
Educational Attainment (in Years)	11.05	1.724	0	18
Number of Children	1.33	1.675	0	20
Number of Prior Incarcerations	0.43	0.704	0	8
Length of Current Stay (in Days)	1,854.95	1,250.87	730	13,170

* = $p < .05$; + = $p < .10$; $N = 4,973$

82, with an average age of 37 ($SD=10.5$). Fifty-eight percent ($n = 2,903$) of the sample reported having never been married, while 20% ($n = 990$) of inmates were married, and nearly 22% ($n = 1,080$) of inmates reported that they were no longer married. The number of dependents was a continuous variable that ranged from 0 to 20, with an average of 1.33 dependents ($SD = 1.68$).

Inmate criminogenic characteristics were captured across three measures – offender type, criminal history, and length of stay in prison. Offender type referred to the current charge(s) for which inmates were convicted and sentenced to prison. This variable contained five categories – violent, property, drug, sex, and other – none of which were mutually exclusive. In lieu of using a hierarchy rule, this variable was scored to reflect all offense-types in which the inmate was convicted. For example, if an offender was convicted of burglary and possession of a controlled substance, they were scored as both a property and drug offender. Subsequently, the total across all offender-types should exceed the total number of observations in the sample. Violent offenders ($n = 1,647$; 33%) consisted of those sentenced for murder, robbery, and aggravated assault. Over half of the sample was convicted of property offenses ($n = 2,537$; 51%), which included burglary, theft, and arson. The most represented offender-type were drug offenders ($n = 2,651$; 53%) such as those convicted of drug use, distribution, or cultivation. A relatively small portion of inmates were in prison for a sex offense ($n = 752$; 15%). Lastly, a significant portion ($n = 2,179$; 44%) of the sample were convicted of crimes that did not fall into the other four offense-types. The “other” category included offenses such as driving under the influence, driving without an operator’s license, and failure to comply with sex offender registration.

The number of prior incarcerations was also included in the analysis to capture offenders’ criminal history. Previous incarcerations ranged from 0 to 8, with an average of 0.43 ($SD = 0.70$). It is important to note that these records only reflected previous incarcerations within the sample state and did not include prior convictions in other states. Although eligibility for the sample was restricted to inmates serving at least two years in prison, there was a notable amount of variability in the time inmates spent in prison prior to release. However, time served has garnered mixed results in the misconduct literature (Steiner et al., 2014). Therefore, a variable was generated for the length of stay to determine how long inmates ultimately served in prison prior to their release. This measure was scored in days, with an average of 1,855 ($SD = 1,251$) and a range from 730 to 13,170 days. A two-year timeframe was selected

due to the average time served in state prison (from initial admission to initial release), which is 2.6 years (Kaeble, 2018). In addition, this timeframe provided an established pattern of behavior for the inmates in this sample due to potential issues in measurement of this factor in previous research (Schenk & Fremouw, 2012).

Procedure

A series of binary logistic regression were conducted to examine the importance of age in predicting the prevalence of misconduct among inmates. Due to the dichotomous nature of the outcome variable (misconduct), it was necessary to use an analytic technique that could explain binary outcomes. Binary logistic regression allowed us to estimate the logged odds that some event (i.e., misconduct) would occur given the influence of predictor variables in the model (Long & Freese, 2014). Therefore, binary logistic regression was determined to be an appropriate analysis to answer the research questions.

Standardized residuals were generated using an initial model with all predictors and controls to identify cases that exerted undue influence over the model. Sixteen cases were dropped from the model due to high standardized residuals (greater than ± 2.58). Next, a variance inflation factor (VIF) was used to assess the potential risk of multicollinearity in the model. All variables had VIF scores within conventional limits and ranged between 1.01 and 1.60. The overall model had an average VIF of 1.20.³ The final model demonstrated appropriate model fit by passing the Hosmer-Lemeshow Goodness-of-Fit test ($\chi^2=4,979.21, p>.05$).

After specifying a well-fitted model, the first binary logistic regression included age as a continuous variable to calculate predicted probabilities. These probabilities were used to demonstrate the relationship between age and misconduct for reentering inmates. A second binary logistic regression was conducted using a single categorical age variable with five age categories: less than 40 years, 40-44 years, 45-49 years, 50-54 years, and 55 years or more. This model was used to identify a potential age range tipping point in prison misconduct (Aday, 2003; Loeb & Steffensmeier, 2006; McShane & Williams, 1990; Phillips et al., 2011; B. A. Williams, Stern et al., 2012).

Results

The first model examined the relationship between predictors of misconduct using a continuous

measure of age (see Table 2, Model 1). In this model, there were mixed results with the various sociodemographic variables associated with misconduct. Namely, inmates held significantly greater odds of committing misconduct if they were less educated. Additionally, marital status was marginally significant, indicating that inmates who had never been married had significantly greater odds of committing misconduct within the two years prior to release. Race was a significant predictor of misconduct, with nonwhite inmates holding significantly greater odds of committing misconduct than White inmates. The number of children that inmates reported did not predict the odds of committing misconduct within two years of release.

Crime-related factors were also statistically significant throughout this initial model with two notable exceptions. First, offenders who came to prison with a drug offense were not significantly any more or less likely to commit misconduct than non-drug offenders. Although this contradicts existing research that has found drug offenders (Jiang & Fisher-Giorlando, 2002), offenders with a history of drug use (Flanagan, 1983), or drug dependent offenders (Grosholz & Semenza, 2018; Steiner et al., 2014) to be more likely to commit misconduct, the findings are in line with recent reviews of the misconduct literature that found drug offending to more often be nonsignificant (Cihan & Sorensen, 2019; Cunningham et al., 2005). Inmates convicted of

Table 2: Logistic Regression of Age on Misconduct in Reentering Inmates

Variable	Model 1			Model 2		
	<i>b</i>	SE	OR	<i>b</i>	SE	OR
Marital Status (Never Married)						
<i>Married</i>	-0.158	0.082	0.853 ⁺	-0.207	0.082	0.812 [*]
<i>No Longer Married</i>	-0.164	0.086	0.848 ⁺	-0.234	0.085	0.790 [*]
Number of Dependents	-0.030	0.019	0.969	-0.034	0.019	0.966 ⁺
Educational Attainment (Years)	-0.033	0.017	0.960 [*]	-0.041	0.017	0.959 [*]
Nonwhite (White)	0.312	0.065	1.367 [*]	0.329	0.065	1.390 [*]
Age (in years)	-0.030	0.003	0.969 [*]			
Age (Under 40 years)						
<i>40-44 years</i>				-0.421	0.101	0.656 [*]
<i>45-49 years</i>				-0.603	0.113	0.546 [*]
<i>50-54 years</i>				-0.612	0.128	0.542 [*]
<i>55 years and older</i>				-0.457	0.139	0.633 [*]
Violent Offender	0.359	0.067	1.431 [*]	0.363	0.067	1.437 [*]
Property Offender	0.145	0.063	1.156 [*]	0.170	0.063	1.185 [*]
Sex Offender	0.791	0.098	2.207 [*]	0.750	0.097	2.117 [*]
Drug Offender	-0.052	0.067	0.949	-0.089	0.066	0.913
Other Crime Category	0.104	0.062	1.109 ⁺	0.103	0.062	1.108 ⁺
Number of Prior Incarcerations	0.017	0.050	1.017	-0.038	0.049	0.962
Length of Stay	<-0.001	0.090	0.999 [*]	<-0.001	<0.001	0.999 [*]
Model Fit Statistics						
	$\chi^2(13) = 353.40, p < .05$			$\chi^2(16) = 337.05, p < .05$		
<i>Full Model Log Likelihood</i>	-3161.407			-3170.079		
<i>Nagelkerke R²</i>	0.107			0.103		
<i>McFadden's Adjusted R²</i>	0.057			0.059		

* = $p < .05$; ⁺ = $p < .10$; $N = 4,973$; SE = Robust Standard Error (relative to coefficient)

Note. Reference categories are indicated in parentheses. All continuous variables were centered at their mean.

violent, property, or sex offenses, however, had greater odds of committing misconduct than inmates who did not fall into those offense-types.

An inmate's criminal history, measured as the number of prior incarcerations, was not significantly associated with prison misconduct in the sample. This finding also differs from existing research that found misconduct increases with the number of prior incarcerations (Berg & DeLisi, 2006; Cunningham et al., 2005; DeLisi et al., 2004; DeLisi & Munoz, 2003; Flanagan, 1983; Kuanliang & Sorensen, 2008; Steiner et al., 2014; Steiner & Wooldredge, 2008, 2014b). Finally, inmates who had lengthier stays had a reduced risk of misconduct in the two years prior to release. The likelihood of committing misconduct decreased by 8.15% for every three years served in prison. It could be that inmates serving longer sentences are more likely to adapt to prison life, and even mature, while serving their lengthy sentences than those with shorter sentences or repeat offenders (Toch & Kupers, 2007).

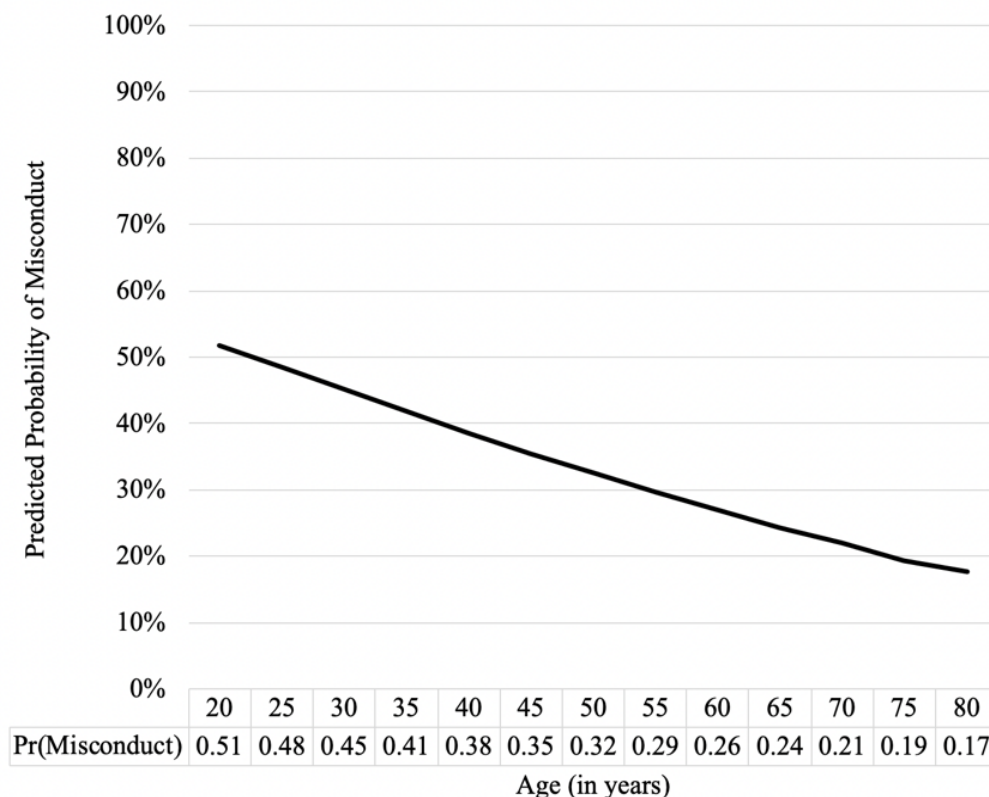
There was a statistically significant, negative relationship between age and the odds of reentering inmates committing misconduct within two years of release ($b = -0.030$, $OR = 0.969$). More specifically, the

predicted probabilities from this relationship showed a decline from approximately 51% at 20 years old to 17% by 80 years old (see Figure 1). This finding fits existing research on the age-misconduct curve, especially those that use continuous measures of age (Kuanliang & Sorensen, 2008).

Categories of Aging Inmates

The second model replicated the initial model but replaced the continuous age variable with a measure that identified five categories of inmate age (see Appendix A for descriptive statistics for the five age categories). Most of the significant predictors from the first model remained significant in the same direction. One distinction from the first model was that the number of dependents was marginally significant in the second model ($b = -0.034$, $p = .099$). Further, marital status was statistically significant rather than marginally significant. The offense categories were similar in both models as well. Two of the null findings in this model – drug offenders and prior incarcerations – contradicted existing research on institutional misconduct (Berg & DeLisi, 2006; Cunningham et al., 2005; DeLisi et al., 2004; DeLisi & Munoz, 2003; Flanagan, 1983; Jiang & Fisher-

Figure 1: Probability of Rule Violation in Two Years Prior to Release Across Age



Giorlando, 2002; Kuanliang & Sorensen, 2008; Steiner & Wooldredge, 2008, 2014b).

By treating age as a five-category variable, it led to a similar conclusion as to its treatment as a continuous variable. Namely, the odds of committing misconduct decreased with the age of the inmate. This model, however, allowed us to observe differences between age cutoffs for the “aging inmate” label discussed in existing literature (see Table 3; Aday, 2003; McShane & Williams, 1990; Phillips et al., 2011; B. A. Williams, Stern et al., 2012). In the sample of inmates, significant differences between age cutoffs dissipated at and beyond the 40-44 year old category. The odds of committing misconduct were significantly

approached release. These family dynamics related to misconduct amongst older inmates (40 years old or older) differently than younger inmates. Namely, older inmates who were separated or divorced did not pose a significantly different risk of misconduct than older inmates who were never married; however, older inmates who reported being married were significantly less likely to participate in misconduct prior to release than older inmates who had never married. The number of dependents did not predict the risk of misconduct by older inmates. In addition to family dynamics, another difference in statistical significance across age-specific models included educational attainment. Whereas educational attainment did not

Table 3: Predicted Probability of Misconduct across Age Cutoff Scores

	<40 years	40-44 years	45-49 years	50-54 years	>55 years
<40 years	-	0.095*	0.134*	0.135*	0.103*
40-44 years	-0.095*	-	0.038	0.040	0.007
45-49 years	-0.134*	-0.038	-	0.001	-0.031
50-54 years	-0.135*	-0.040	-0.001	-	-0.032
> 55 years	-0.103*	-0.007	0.031	0.032	-

* = $p < .05$; + = $p < .10$

Note. Coefficients are contrasted predicted margins (row-column). Therefore, negative scores represent greater probability for misconduct in the column category and positive score represents greater probability for the row category.

greater amongst younger inmates until 40 years old, at which time the odds of committing misconduct was no longer significant. Taken in combination with the results from the first model, the declining likelihood of misconduct as inmate age increased was no longer significant beyond the 40-year-old age range.

Comparing Inmate Groups

The final analysis explored potential differences in the correlates of misconduct for inmates around this cutoff age (i.e., 40 years old and above). To do this, group-specific binary logistic regression models were conducted wherein misconduct was regressed upon all covariates from the previous analysis (see Table 4).⁴

Misconduct amongst younger inmates (less than 40 years old) was significantly associated with marital status, parenthood, race, offense category, and length of stay. More specifically, younger inmates who had been separated or divorced were significantly less likely to be convicted of misconduct as they approached release than younger inmates who had never married. The number of dependents also decreased the likelihood of misconduct as they

predict the risk of misconduct amongst younger inmates, it did significantly predict a declining risk in older inmates. Similar to the family covariates, there was no significant difference in effect across models for educational attainment; however, the difference in significance within each model may inform the understanding of misconduct amongst inmates approaching release. A final source of difference in correlates of misconduct across age-specific models related to the inmate's offense of conviction.

Specifically, all offense categories significantly predicted greater misconduct amongst younger inmates except for the “other” category and drug offenses (which was only marginally significant in a negative direction). Conversely, misconduct was only significant among older inmates who had a violent or sexual offense. Further, the coefficient for sex offenses was significantly different between age-specific models, with sex offenses predicting significantly more misconduct amongst younger inmates than older.

Table 4: Group-Specific Binary Logistic Regressions of Misconduct on Covariates

Variable	Under 40 (<i>n</i> = 3,110)			40 and Over (<i>n</i> = 1,863)			Test of Coefficients
	<i>b</i>	SE	OR	<i>b</i>	SE	OR	
Marital Status (Never Married)							
<i>Married</i>	-0.109	0.103	0.896	-0.297	0.138	0.742*	1.18
<i>No Longer Married</i>	-0.379	0.122	0.684*	-0.117	0.122	0.888	2.29
Number of Dependents	-0.052	0.025	0.948*	0.001	0.030	1.001	1.86
Educational Attainment (Years)	-0.022	0.024	0.977	-0.066	0.026	0.936*	1.44
Nonwhite (White)	0.360	0.082	1.434*	0.309	0.114	1.362*	0.13
Violent Offender	0.426	0.084	1.531*	0.258	0.117	1.295*	1.34
Property Offender	0.186	0.079	1.205*	0.133	0.112	1.143	0.15
Sex Offender	0.919	0.135	2.507*	0.588	0.146	1.800*	2.75 ⁺
Drug Offender	-0.143	0.082	0.866 ⁺	0.036	0.116	1.026	1.42
Other Crime Category	0.080	0.076	1.084	0.145	0.110	1.157	0.24
Number of Prior Incarcerations	-0.029	0.085	0.970	-0.039	0.059	0.961	0.01
Length of Stay (Days)	<-0.001	<0.001	0.999*	<-0.001	<0.001	0.999*	3.08 ⁺
Model Fit Statistics		$\chi^2(12) = 168.14, p < .05$			$\chi^2(12) = 77.16, p < .05$		
<i>Full Model Log Likelihood</i>		-2053.658			-1108.222		
<i>Nagelkerke R²</i>		0.081			0.059		
<i>McFadden's Adjusted R²</i>		0.039			0.023		

* = $p < .05$; ⁺ = $p < .10$; *N* = 4,973; SE = Robust Standard Error (relative to coefficient)

Note. Reference categories are indicated in parentheses. All continuous variables were centered at their mean.

Test of coefficients was a Wald test using a χ^2 distribution with *df* = 1

Discussion

The age at which prison misconduct decreases likely varies by individual attributes, but correctional systems cannot base procedures on individual offender characteristics. They are likely to make policies that apply to broad groups of offenders to facilitate the management of various populations. Although it is important from an individual case management perspective to periodically assess the functional age and needs of inmates, it is impractical for correctional administrators to make housing decisions for inmates on a case-by-case situation based on functional age alone. Inmate behaviors within prison will likely continue to be a foundation on which inmate housing decisions are made, and thus, if it is possible to anticipate at what age range prisoners' misconduct decreases, informed housing decisions can be made for inmates that would help in the deployment of correctional resources more efficiently.

For the current study, the purpose was to isolate the age cutoff in which prison misconduct begins to decline while controlling for individual characteristics. The results seem to be consistent with previous research. Those who were more educated were less likely to commit misconduct (Cihan & Sorensen, 2019; Cunningham et al., 2005; Reidy & Sorensen, 2018; Steiner et al., 2014). There have been mixed results in previous literature for marital status (Cihan & Sorensen, 2019; Steiner et al., 2014; Tewksbury et al., 2014), dependents (Steiner et al., 2014), and offender type (Cihan & Sorensen, 2019; Cunningham et al., 2005; Cunningham et al., 2011; Cunningham & Sorensen, 2006a; Drury & DeLisi, 2010; Edens et al., 2005; Harer & Langan, 2001; Schenk & Fremouw, 2012; Steiner, 2009; Steiner et al., 2014). In the study, violent and property offenders were more likely to commit misconduct when compared to other groups. Although the relationship between violent offenders and prison misconduct have garnered mixed results in prior works (Cunningham et

al., 2011; Cunningham & Sorensen, 2006a; Drury & DeLisi, 2010; Edens et al., 2005; Harer & Langan, 2001; Schenk & Fremouw, 2012; Steiner, 2009;

Steiner et al., 2014), the findings regarding property offending and prison misconduct is consistent with previous research (Cihan & Sorensen, 2019; Cunningham et al., 2005). Interestingly, the positive relationship between sex offending and misconduct differs from most existing literature (Hilinski-Rosick & Freiburger, 2016; Steiner et al., 2014), with the exception of Tewksbury and colleagues' (2014) study. It was also found that inmates with lengthier sentences were less likely to commit misconduct, which could be a result of "maturation and adaptation" to prison life (Tock & Kupers, 2007) or inmates simply did not want to deteriorate their chances of going back home or miss out on opportunities while incarcerated (Cunningham et al., 2016; Flanagan, 1980). Regardless, there was a significant negative relationship between age and misconduct when age was examined as a continuous variable.

It was found that misconduct begins to decline at the age of 40 years old. The age cutoff at 40-44 years old may seem young for persons outside of prison; however, research has shown that incarceration combined with other social developmental factors (e.g., drug and alcohol abuse) can increase the aging process for inmates when compared to the general population (Aday, 2003; Maschi et al., 2013). For instance, some scholars have found that inmates' functional age averages 10 to 15 years older than their chronological age when compared to the general population (Maschi et al., 2013; B. A. Williams, Goodwin et al., 2012). A 40-year-old inmate may be equivalent to a 50 or 55-year-old in the general population because of functional health.⁵

When the differences between younger and older inmates (i.e., 40 years old cutoff) were examined in the final model, it was found that misconduct was significantly associated with a number of individual variables. Those who were separated or divorced were significantly less likely to be convicted of misconduct than those who have never been married. For older inmates, marital status did not impact misconduct, with the exception of married older inmates who were significantly less likely to participate in misconduct prior to release than older inmates who had never married. Therefore, being married was significant for both younger and older inmates as it related to misconduct; however, being separated and divorced impacted the younger and older inmates differently. Logically, it can be argued that inmates who are married or separated have a connection to society (i.e., spouses). Misconduct in prison, when inmates are close to going home, would jeopardize their

opportunity to reconnect with loved ones. The quality of the relationships was not taken into account, which would provide more insight into the inmates' adjustment to the prison setting. Future research should examine the quality of relationships between inmates and their family members and how that impacts misconduct by age.

In addition, younger inmates who reported having children participated in less misconduct than younger inmates who did not have children. The number of dependents was not significant for older inmates. The association between having children and misconduct has been mixed in the literature (Steiner et al., 2014). The studies that have focused on contact with dependents have found that contact actually increased the risk of misconduct due to how emotionally straining these encounters can be for the parents (Benning & Lahm, 2016; Jiang & Winfree, 2006; Pollock, 2012). Although the coefficients for each of these variables were not significantly different across age-specific models, the difference in the significance of how many children the inmate reported within each model may be telling theoretically. Logically, it might be reasonable to assume that younger inmates have younger children and older inmates have older children. To the degree that the positive effects of parenthood on conformity are stronger amongst children who are earlier in their development and, thus, more dependent upon their parents, the statistical significance of children amongst younger inmates (and the lack thereof for older inmates) may make sense. This relationship may be especially motivating for younger inmates preparing to reunite with young children. Again, the quality of the relationships between parents and their children was not investigated. Future research should focus more on the prosocial relationships, especially amongst older inmates, and how these relationships affect their adjustment.

There were also differences with educational attainment, age, and misconduct. Although educational attainment did not predict misconduct among younger inmates, it did significantly predict a decrease in misconduct among older inmates, which is in line with some of the literature on misconduct (Cihan & Sorensen, 2019; Hilinski-Rosick & Freiburger, 2016). Similar to marriage and dependent variables above, there were no significant differences across the models for educational attainment; however, the differences within the models can be insightful regarding inmates approaching release. Inmates who are older may have fewer options for opportunities for success after releasing from prison (e.g., gainful employment). As such, those who hold stronger prospects for reentry may have a more positive outlook on reentry and, therefore, more to lose

by committing misconduct prior to release. Lastly, it was found that all convicted offenses of younger inmates predicted misconduct, with the exception of drug and other offenses. For older inmates, violent or sexual offenses predicted the risk of misconduct. In addition, sex offenses were significantly different between age-specific models; however, younger inmates with sexual offenses were predicted to commit more misconduct than older inmates. Even though previous research has been mixed on the association between violent offenders and misconduct, some researchers have found that violent offenders have an increased risk for misconduct in prison (Schenk & Fremouw, 2012; Steiner, 2009).

Limitations

As in any research, the current study had a number of limitations. The data used in this study were collected and coded intended for agency use, which forced us to use proxy measures for theoretical concepts for this study (Maxfield & Babbie, 2018). This study was subjected to a number of issues common to secondary datasets such as missing data, data imputation errors, and the use of proxy variables. In addition, some relevant data were not available, such as prior incarcerations in other states. Similar to other studies on misconduct, only infractions detected and officially reported were included in this analysis, which created internal validity issues. However, these data were the best available at the time of the study. Future studies should triangulate official data with self-reported data to identify inconsistencies between the data.

The sample only included men released from incarceration from a specific state; therefore, precautions should be taken generalizing the results to women and other correctional populations. This study did not include facility-level measures, even though these data were collected from multiple facilities within the state. A standard error, however, was included to adjust for the positively correlated error within prisons. In addition, since the sample included inmates who were close to being released, some inmates were excluded from this study such as those whose misconduct kept them from prison release, those serving life without parole, and inmates who were midway through their prison sentence. Also, it is likely that the frequency of institutional misconduct varies between those in the sample and inmates who are serving longer sentences.

The sample also consisted of two released cohorts (2013 and 2014) who eventually were released to the community. As such, it is possible that the sample could have been model inmates in light of their anticipated release. The timeframe was selected for two main reasons. First, the average amount of time

served for state prisoners is 2.6 years (Kaeble, 2018). Second, the two-year timeframe should provide enough time to establish a behavioral pattern of the inmates in this sample, even with the limitations of official data. The goal of this study was to provide prison administrators with information about the age cutoff at which misconduct significantly changes. The two-year timeframe should provide better insight into the behavior of inmates than examining misconduct of all inmates, who can spend very few days in prison. In addition, the analysis does not examine the severity of institutional misconduct, which has been addressed in past research (Camp et al., 2003; Cihan & Sorensen, 2019; Drury & DeLisi, 2010; Kuanliang & Sorensen, 2008; Steiner, 2009; Steiner & Wooldredge, 2008, 2014a, b), and this study did not disaggregate the type of criminal offense for which inmates were in prison because this was not part of the focus on this study.

Conclusion

Whether aging inside of prison or entering prison at advanced ages, correctional systems must find ways to house, treat, and manage “older” inmates. Most scholars and correctional administrators admit to the higher financial costs of housing “older” inmates as opposed to younger ones (Aday, 2003; Maschi et al., 2013; B. A. Williams et al., 2006). Mental and physical health care costs, as well as changes to prison construction to comply with the American with Disabilities Act (ADA), have caused prison budgets to soar. Until such time that sentencing practices regarding the incarceration of the elderly change, budget increases will continue as more elderly individuals are admitted to prisons. This study offers a target inmate population to more efficiently focus resources of the correctional system.

Beyond health care professionals and accommodations for disabilities, correctional officers are often a major expense in correctional budgets (Kerbs & Jolley, 2009). Since correctional officers are hired and maintained based on standardized officer-to-inmate ratios, this study suggests that a demographic review of prison populations may help anticipate staffing needs. For instance, if 50% of a prison's population is 40 years or older, it could be that fewer correctional officers are needed in that facility to manage inmate misconduct. If, however, a prison is comprised primarily of inmates less than 40 years old, more correctional officers may be needed to maintain order. Perhaps separating inmates 40 years and older would help correctional administrators staff facilities with fewer correctional officers and additional health care professionals, thereby leaving more correctional officers and fewer health care professionals in the majority of other penal institutions. Even if inmates 40

years old and older remain in each prison facility, it is possible that assigning this population to a distinct housing unit would generate less need for correctional officers in that housing unit, freeing up more officers to attend to the populations most at risk for misbehavior. In this way, the results of this study may do little to ease the financial burden older inmates place on correctional systems, but there may be implications for efficiency in correctional operations and staffing decisions.

As the aging inmate population continues to grow (Porter et al., 2016), so will the need for correctional agencies to respond to accommodate the needs of older inmates. Consequently, the findings would suggest using the cutoff of 40 years old as the age range for inmates to be assigned to a separate facility. In addition, some of the disability needs of older inmates, such as walkers and canes, can threaten the security of the correctional facilities if these tools are used as weapons by younger inmates (Hilinski-Rosick & Freiburger, 2016); therefore, separating these inmates would promote increased safety within correctional facilities. It would also allow for appropriate resource distribution in that medical professionals could be overstaffed in one facility rather than fully staffing each facility 24 hours a day, seven days a week. The added expense of medical professionals at the “older inmate” facility could be offset by the decrease in a need for correctional officers and other forms of security and order maintenance technology.

Separate facilities could be used to also increase the number of opportunities for older inmates. Opportunities for recreation and programming are often targeted at younger inmates (Aday, 2003; Kerbs, 2000), and older inmates find little value in programs (e.g., education, vocational, and rehabilitative) that are designed for younger inmates (Maschi et al., 2013). Maschi and Aday (2014) discussed the many challenges of housing older offenders and preparing them for reentry. They called attention to the need for more prison-based programs and facilities specifically for older inmates like the True Grit Program in Nevada. This program was created to focus on recreational, spiritual, mental, and social well-being and the reentry needs of older inmates and has been found to increase both the psychological and social well-being of older inmates (Harrison et al., 2011). If these programs are found to be successful at helping older inmates adapt to prison and their reentry back into society, it could potentially save money (e.g., less use of emergency medical care and less recidivism) and increase the desirability of these programs among the general and inmate populations. It has been found that the majority of older inmates would like to be in segregated housing (Aday, 2006); however, some

prefer to stay in the general population (Aday & Krabill, 2011; Gallagher, 2001).

Finally, the dependent variable was a binary measure that focused on whether or not the inmates received a misconduct report and not the type of misconduct. Future studies should determine if the findings from this study are consistent when examining different types of misconduct. Based on previous research, it is logical to assume that older inmates' involvement in certain types of misconduct (e.g., assaultive) may decline more rapidly than other types (e.g., rule violations) due to decreased functional health. In addition, future studies should survey or interview older inmates about their involvement in misconduct, rationalization for involvement or noninvolvement (e.g., functional age, maturation, desistance, etc.), victimization (frequency, type, coping mechanisms, etc.), and by whom they are being victimized (e.g., age, race, etc.) to provide more insight into why inmates of various ages are involved or not involved in misconduct.

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Endnotes

- ¹ Three strikes laws target habitual felony-level offenders who are typically sentenced 25 years to life imprisonment (Chen, 2008). Mandatory minimum laws established set sentence lengths for specific offenses, regardless of mitigating circumstances of the crime (Mauer, 2006). Truth-in-Sentencing laws required violent offenders to serve at least 85% of their convicted sentences (Shepherd, 2002).
- ² In 2002, 5.5% of all those arrested were elders, and 15% of these elders were arrested for murder, sex crimes aggravated assault, larceny, or drug offenses (Aday & Krabill, 2006). Other crimes for which the elderly are traditionally arrested include embezzlement and fraud, burglary, receiving stolen property, and forgery/counterfeiting (Moberg, 1953).

- ³ A ladder-of-powers quantile-normality plot (qladder in Stata 15.1) was also used to identify potentially beneficial transformations for the continuous variables in the model. Two transformations were considered—a square transformation of the number of dependents and an inverted length of stay transformation—but neither transformation significantly improved model fit. Therefore, the original versions of each variable were retained.
- ⁴ The diagnostics from earlier analyses were replicated with each group-specific models. As none of the diagnostic tests were concerning, no additional transformations were required beyond those included in the earlier binary logistic regressions (i.e., robust standard errors).
- ⁵ The field of gerontology has produced many studies that provided insight into the aging process in prison (Maschi et al., 2011; Maschi et al., 2013; Phillips et al., 2011; B. A. Williams et al., 2006). Prior studies have found that incarceration not only limits personal freedom but can also decrease quality of life and physical and mental health functioning abilities (Maschi et al., 2013). There are certain life circumstances that can cause both young and old inmates to functionally age more quickly when compared to the general population (Maschi et al., 2013; B. A. Williams, Goodwin et al., 2012), which include the “stressful conditions of prison confinement, such as prolonged exposure to overcrowding, social deprivation, and prison violence” (Maschi et al., 2013, p. 1).