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The Sources of Violent and Nonviolent Offending among Women in Prison

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Abstract
This study involved an assessment of the relevance of women’s background characteristics for predicting their offending in prison. Data were collected from over 650 women confined in a large prison for women in a Midwestern state, and the relative effects of these factors were examined. Findings revealed that background characteristics reflecting social demographics (e.g. race, sexual orientation) and women’s life experiences (e.g. abuse as a child) were relevant for predicting women’s violent and nonviolent misbehavior in prison.

Keywords: inmate; prison; women; rule violation; gender

The formal inmate rules of conduct identify the behaviors prohibited within a prison. Some of these acts are considered crimes outside of prison (e.g. assault), while others are disallowed because they interfere with the orderly operation of a prison (e.g. disrespecting staff). Violations of the rules of conduct are disruptive to the safety and order of a prison (Dilulio, 1987; Eichenthal & Jacobs, 1991; Steiner & Wooldredge, 2014a), and inmates who perpetrate rule violations have higher odds of victimization and subsequent offending in prison (Steiner, Butler, & Ellison, 2014; Wooldredge & Steiner, 2014). Inmates who violate prison rules are also at greater risk for continued offending upon their release from prison (Cochran, 2014; Cochran, Mears, Bales, & Stewart, 2014; Cochran & Mears, 2017; Trulson, DeLisi, & Marquart, 2011), making understanding the influences of prison rule breaking relevant to public safety.

The priority placed on institutional safety and order by prison administrators and the relevance of offending in prison to understanding the desistance process have generated a number of studies regarding the predictors of inmate rule violations (see
Byrne & Hummer, 2008; Goncalves, Goncalves, Martins, & Dirkzwager, 2014; Schenk & Fremouw, 2012; Steiner et al., 2014 for reviews of this literature). However, most of these studies have focused on men or mixed sex samples comprised primarily of men, which raises the possibility that the findings from these studies do not generalize to women (Kruttschnitt, 2016). Steiner et al.’s (2014) comprehensive review of the literature pertaining to the causes and correlates of inmate misconduct (rule violations) published between 1980 and 2013 revealed that only 11 (11%) of the studies included an examination of the predictors of misconduct among women.

Despite the dearth of studies related to women offenders’ behavior in prison, considerable research has been devoted to understanding women’s backgrounds or their “pathways” into offending and justice-system involvement over the past two decades (Bloom, Owen, & Covington, 2004; Daly, 1992; Kruttschnitt, 2016; Steffensmeier & Allan, 1996). But, rigorous research regarding the effects of these life experiences on women is still in its infancy, particularly in carceral settings (Kruttschnitt, 2016). In this study, we attend to this gap in the literature in part and address Kruttschnitt’s (2016) call for rigorous empirical work on the predictors of women’s offending in prison. We use data collected from a large sample of women housed in a prison in Midwestern state permitting us to examine a comprehensive set of predictors of offending in prison. First, however, we turn our attention to the theoretical mechanisms linking women’s background characteristics to their offending in prison.

**Women’s backgrounds and their contribution to offending in prison**

The backgrounds women bring with them to prison are shaped by their life experiences before their imprisonment. These experiences vary across women, but based on the extant literature, might include characteristics such as suffering abuse, mental health problems, deficits in their education, prior justice system involvement, sub-stance use, or family and relationship problems (Chesney-Lind, 1997; Greenfeld & Snell, 1999; Merlo & Pollock, 1995; Owen, 1998; Owen & Bloom, 1995; Pollock, 1998), each of which could contribute to the expression of characteristics such as impulsivity or antisocial attitudes (Brewer-Smyth, 2004; Brewer-Smyth, Burgess, & Shults, 2004; DeHart, 2008; Moffitt, Caspi, Rutter, & Silva, 2001). Social demographic characteristics such as women’s
age, race, and sexual orientation may also be relevant because these factors often influence the lens through which women view their surroundings, not to mention how others view them – each of which influences their life experiences (Arnold, 1990; Clark et al., 2012; Owen, Wells, & Pollock, 2017).

Here, we link women’s background characteristics to their offending in prison by drawing from prior research pertaining to both women and men in order to provide a more comprehensive model of offending among female prisoners than has typically been examined. We expect differences in the social demographics and life experiences women bring to prison to coincide with variation in their likelihood of offending in prison. Younger women, for instance, may be more likely to violate prison rules because these inmates are less likely to participate in conformist activities such as education classes, work, or rehabilitative programming. Younger women are also less likely to be involved in conventional relationships with friends and/or romantic partners outside of prison that might act as restraints on their behavior (Houser, Belenko, & Brennan, 2012; Seffrin, Giordano, Manning, & Longmore, 2009; Steiner & Wooldredge, 2009a, 2014b; Wooldredge, Griffin, & Pratt, 2001). Inmates who are racial minorities may also be more likely to engage in rule violations because, relative to white inmates, minority inmates are more likely to originate from disadvantaged communities where hostility and resentment toward legal authority are pervasive among residents (Chauhan & Reppucci, 2009; Harer & Steffensmeier, 1996; Owen et al., 2017; Sampson & Bartusch, 1998). Inmates may bring these values and attitudes into prison, which could contribute to higher odds of offending (Irwin, 1980; Irwin & Cresssey, 1962; Kruttschnitt & Gartner, 2005; Steiner & Wooldredge, 2009a). There is evidence of relationships between prison offending and both age and race among female inmates (Berg & DeLisi, 2006; Cain, Steiner, Wright, & Meade, 2016; Houser et al., 2012; Ireland, 1999; Kruttschnitt & Gartner, 2005; Lahm, 2016; McCorkle, 1995; Steiner & Wooldredge, 2009a, 2014b).

Sexual minorities (e.g. lesbians) are more likely to experience harassment and victimization in the general population and in prison (Beck, Berzofsky, Caspar, & Krebs, 2013; Birkett, Espelage, & Koenig, 2009; Burton, Marshal, Chisolm, Sucato, & Friedman, 2013; D’Augelli, Pilkinson, & Hershberger, 2002; Goldbach, Raymond, & Burgess, 2017; Meyer et al., 2017; Olsen, Kann, Vivolo-Kantor, & McManus, 2014; Owen et al., 2017; Smyth &
Jenness, 2014), which may also increase their risk for offending (e.g. via retaliation). Indeed, researchers have uncovered a link between victimization and offending in the general population (see Jennings, Piquero, & Reingle, 2012; Lauritsen & Laub, 2007) as well as among both male and female prisoners (Kerley, Hochstetler, & Copes, 2009; Toman, 2017; Wooldredge & Steiner, 2013, 2014, 2016). Researchers using general population samples have provided evidence that sexual minorities exhibit a greater risk for both victimization and offending behavior (Goldbach et al., 2017; Olsen et al., 2014), with the risk of offending potentially being explained by the greater stress sexual minorities experience relative to heterosexuals (Woods, 2017; Zavala, 2017). If suffering victimization or stress contributes to offending in prison, and sexual minorities are more likely to experience these circumstances, then sexual minorities might also be at greater risk for offending in prison.

Inmate involvement in education has been associated with lower odds of perpetrating prison rule violations (Chamberlain, 2012; Drury & DeLisi, 2010; Gover, Pérez, & Jennings, 2008; Wooldredge et al., 2001); this is because involvement in education demonstrates a commitment to a prosocial activity and may function as an incentive for inmates to comply with prison rules (Colvin, 1992; Huebner, 2003). However, studies of female prisoners have revealed mixed findings pertaining to the effect of education on offending (Harer & Langan, 2001; Houser et al., 2012; Steiner & Wooldredge, 2009a, 2014b), and so further inquiry regarding the effects of related risk factors is needed among women.

It has been well documented that female prisoners experience high rates of abuse and victimization prior to their imprisonment (Bloom, Owen, & Covington, 2003; Cain et al., 2016; DeHart, 2008; Sheridan, 1996; Steiner & Wooldredge, 2009a; Van Voorhis, Wright, Salisbury, & Bauman, 2010; Wright, Salisbury, & Van Voorhis, 2007), and there are several mechanisms linking abuse and/or victimization to subsequent offending. For instance, experiencing abuse and/or victimization prior to incarceration can model violence as a means of problem-solving (Akers, Krohn, Lanza-Kaduce, & Radosevich, 1979; Dodge, Bates, & Pettit, 1990; Spaccarelli, Coatsworth, & Bowden, 1995), and individuals may imitate this behavior within prison in order to navigate the challenges posed by the carceral environment (Cain et al., 2016; Jonson-Reid, 1998; Lauritsen, Sampson, & Laub, 1991; Widom,
Exposure to abuse and victimization can also disrupt prosocial learning processes by limiting victims’ exposure to healthy means of problem-solving and by reducing their capacity to interpret emotional cues and regulate their own mental or emotional states (Dodge et al., 1990), either of which may increase their odds of perpetrating subsequent violence toward others (Cain et al., 2016). Experiencing abuse or victimization also promotes fear and anxiety that could reduce individuals’ control over their environment, which can ultimately evoke paranoia, hypervigilance, hostility, and eventually violence (Bandura, 1977; Dodge et al., 1990; Luthra et al., 2009).

Despite the strong theoretical mechanisms linking victimization and offending among women within prison, evidence of such a relationship among the general population (Campbell, Greeson, Bybee, & Raja, 2008; DeMaris & Kaukinen, 2005; Dodge et al., 1990; Lauritsen & Laub, 2007; Pinchevsky, Wright, & Fagan, 2013; Widom, 1989a, 1989b), and studies demonstrating the prevalence of female prisoners who have experienced victimization prior to their imprisonment (McDaniels-Wilson, & Belknap, 2008), few studies have investigated the effect of victimization on offending among women within prison, and findings from these studies are mixed (Cain et al., 2016; Salisbury, Van Voorhis, & Spiropoulos, 2009; Steiner & Wooldredge, 2009a; Van Voorhis et al., 2010; Wright et al., 2007). Recall, that Steiner et al.’s (2014) review of the literature pertaining to the influences of prison rule breaking published between 1980 and 2013 found only 11 studies that only examined women, and even fewer studies included measures of abuse or victimization, making it difficult to draw conclusions about the relevance of these factors for predicting women’s offending in prison.

Inmates with mental health problems and substance abuse problems may experience greater difficulty gaining control over their behavior or their environment. This is because mental illness and substance abuse problems tend to weaken individuals’ capacity for self-regulation, and because individuals with these problems focus more on themselves rather than their environment (Baumeister, Heatherton, & Tice, 1994; Felson, Silver, & Remster, 2012). Mental illness and/or substance dependence may also stimulate feelings of paranoia, hypervigilance, or hostility (Dodge et al., 1990; Luthra et al., 2009), which could evoke a maladaptive response to the prison environment (Felson et al., 2012;
McClellan, Farabbee, & Crouch, 1997; Toch, 1977; Toch, Adams, & Grant, 1989). Among women in prison, mental illness and drug dependence are highly prevalent (Bronson & Berzofsky, 2017; Cain et al., 2016, Houser et al., 2012; Mumola & Karberg, 2006), and a few studies have uncovered relationships between women’s risk of perpetrating prison rule violations and mental health problems and/or substance abuse (Bloom et al., 2003; Cain et al., 2016, Houser et al., 2012; Houser & Welsh, 2014; James & Glaze, 2006; McCorkle, 1995; Steiner & Wooldredge, 2009a; Van Voorhis et al., 2010; Wright et al., 2007).

Women are relational by nature and often define their identity and self-worth by the existence and/or the quality of their relationships with others (Gilligan, 1982; Kaplan, 1984; Miller, 1976; Miller & Stiver, 1997; Van Voorhis et al., 2010). Within prisons specifically, we speculate that relationships (both within and outside of prison) might be a catalyst for reducing women’s offending for several reasons. First, relationships can link women to instrumental resources that might prevent them from misbehaving in prison (Reisig, Holtfreter, & Morash, 2002; Wright, Dehart, Koons-Witt, & Crittenden, 2013). Second, relationships can provide emotional and moral support, both of which have been identified by women as catalysts for behavior change (Cobbina, 2009, 2010; Giordano, Cernkovich, & Rudolph, 2002; O’Brien, 2001; Wright et al., 2013). The culture of prisons for women also tends to be communal and family oriented with horizontal stratification systems that are not very conducive to conflict (Giallombardo, 1966; Heffernan, 1972; Kruttschnitt, Gartner, & Miller, 2000; Owen, 1998; Ward & Kassebaum, 1965). Ethnographic studies of women’s prisons have uncovered that many women seek out relationships in prison that provide them support and security (Giallombardo, 1966; Heffernan, 1972; Owen, 1998; Owen et al., 2017), which speaks to the importance of relational networks and their potential influence on female prisoners’ behavior. Third, relationships can function as incentives for women to adhere to the rules because rule violations can result in restricted access to visitation and prison activities that the women may value (Dodge & Pogrebin, 2001; Steiner & Wooldredge, 2009a). In addition to traditional indicators of relationship involvement (e.g. marital status), other potentially relevant dimensions of relationships in prison might include relational need (i.e. co-dependency) and perceived support from persons outside (e.g. family). Yet, with the exception of
marital status, few studies have examined the influence of various aspects of relationships on prison misbehavior among women (Van Voorhis et al., 2010; Wright et al., 2007), though the theoretical underpinnings to do so exist.

Individuals who are more impulsive and those with antisocial attitudes are more likely to engage in offending behavior both inside and outside of prison (Andrews & Bonta, 2010; DeLisi, Hochstetler & Murphy, 2003; Gendreau, Goggin, & Law, 1997; Gottfredson & Hirschi, 1990; Komarovskaya, Loper, & Warren, 2007). Similarly, there is evidence of continuity in criminal behavior among both women and men (Fergusson & Horwood, 2002; Jennings et al., 2010; Laub & Sampson, 1993; Piquero, 2008), under-scoring the relevance of indicators of criminal history for influencing misbehavior in prison. It is worth reiterating, however, that the overall dearth of research on women’s offending in prison limits our understanding of the importance of even these risk factors for understanding women’s misbehavior in prison.

Methods

The purpose of this study was to assess the relevance of a wide range of background characteristics for predicting offending among women in prison. The study was carried out at a large prison for women located in a Midwestern state. The institution is the only prison that houses women in this state, and 722 women were confined there at the time of the study. The target population for the study included all of these women.

Data

Data for the study were collected by administering a survey to the women and by retrieving official data from the Midwestern state’s administrative databases. We administered the survey to 711 of the 722 women housed in the prison in September 2016; 11 women housed in the unit for inmates with a severe mental illness were excluded from the study. The method of administering the survey involved having the women report to classrooms where a member of the research team described the study and provided each woman with a survey and a voluntary consent form approved by the university’s Institutional Review Board. For security purposes, we surveyed women housed in restrictive housing in their cells. One of the researchers subsequently collected each survey, and we compensated inmates who elected to participate with a serving of ice
cream. These procedures resulted in a respondent sample of 690 women. We excluded 25 women from this study because they were missing data on one or more of the variables described below, resulting in a final sample of 665 inmates (a 94% usable participation rate). The sample and all of the measures included in the analyses are described in Table 1.

Table 1. Description of sample of persons confined in a prison for women.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Mean</th>
<th>(SD)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence violent infractions</td>
<td>0.13</td>
<td>(0.34)</td>
<td>0–1</td>
</tr>
<tr>
<td>Incidence violent infractions</td>
<td>0.27</td>
<td>(0.86)</td>
<td>0–5</td>
</tr>
<tr>
<td>Prevalence nonviolent infractions</td>
<td>0.30</td>
<td>(0.46)</td>
<td>0–1</td>
</tr>
<tr>
<td>Incidence nonviolent infractions</td>
<td>2.25</td>
<td>(5.05)</td>
<td>0–20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Mean</th>
<th>(SD)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>35.98</td>
<td>(10.38)</td>
<td>19–81</td>
</tr>
<tr>
<td>Black-not Hispanic</td>
<td>0.15</td>
<td>(0.36)</td>
<td>0–1</td>
</tr>
<tr>
<td>Lesbian, gay, or bisexual</td>
<td>0.25</td>
<td>(0.43)</td>
<td>0–1</td>
</tr>
<tr>
<td>Reading level</td>
<td>9.82</td>
<td>(2.54)</td>
<td>0.7–12.9</td>
</tr>
<tr>
<td>&lt; high school diploma</td>
<td>0.57</td>
<td>(0.50)</td>
<td>0–1</td>
</tr>
<tr>
<td>Abused as child</td>
<td>0.63</td>
<td>(0.48)</td>
<td>0–1</td>
</tr>
<tr>
<td>Abused as adult</td>
<td>0.63</td>
<td>(0.48)</td>
<td>0–1</td>
</tr>
<tr>
<td>Mental health problem</td>
<td>0.62</td>
<td>(0.48)</td>
<td>0–1</td>
</tr>
<tr>
<td>Substance abuse problem</td>
<td>0.39</td>
<td>(0.49)</td>
<td>0–1</td>
</tr>
<tr>
<td>Relationship codependencea</td>
<td>0.00</td>
<td>(0.74)</td>
<td>−1.22-2.09</td>
</tr>
<tr>
<td>Married</td>
<td>0.20</td>
<td>(0.40)</td>
<td>0–1</td>
</tr>
<tr>
<td>Family supporta</td>
<td>0.00</td>
<td>(0.92)</td>
<td>−2.45-0.75</td>
</tr>
<tr>
<td>Impulsivitya</td>
<td>0.01</td>
<td>(0.78)</td>
<td>−1.48-1.66</td>
</tr>
<tr>
<td>Antisocial attitudea</td>
<td>0.00</td>
<td>(0.78)</td>
<td>−1.60-2.08</td>
</tr>
<tr>
<td>Incarcerated for violent offense</td>
<td>0.26</td>
<td>(0.44)</td>
<td>0–1</td>
</tr>
<tr>
<td>Medium/maximum risk</td>
<td>0.26</td>
<td>(0.44)</td>
<td>0–1</td>
</tr>
<tr>
<td>Natural log of time served (in months)</td>
<td>1.82</td>
<td>(1.59)</td>
<td>−3.42-6.12</td>
</tr>
</tbody>
</table>

N 665

Note. aStandardized scale created using sample without cases with missing data removed.

Measures

The outcome variables include official reports of the prevalence and incidence of violent and non-violent rule violations incurred by each woman during her current period of confinement. Violent infractions include acts such as assaulting another inmate, assaulting a staff member, or forcibly taking another inmate’s property, while non-violent rule violations included all other

1Official measures of rule violations are potentially biased due to under-detection or under-reporting on the part of prison staff (Hewitt, Poole, & Regoli, 1984). Although official measures of rule violations have been determined to be valid indicators of inmate behavior (Steiner & Wooldredge, 2014a; Van Voorhis, 1994), readers should keep the limitations of these measures in mind when interpreting the findings.
offenses except drug violations. We examined both the prevalence and incidence of each type of violation to provide a more comprehensive examination of offending in prison. In other words, some predictors could be more relevant for understanding whether an inmate perpetrates a violation (i.e. prevalence), while others may be stronger predictors of the frequency of violations (i.e. incidence) (see Blumstein, Cohen, & Nagin, 1978 for a related discussion of the analysis of recidivism). We also included a measure of time served (in months) in all of the analyses to adjust for differences in exposure time among the women. We used the natural log of this measure because the original scale was skewed.

The measures examined in this study included age, race/ethnicity (black-not Hispanic), sexual orientation (lesbian, gay, or bisexual), education (reading level, <high school diploma), abused as child, abused as adult, mental health problem, substance abuse problem, relationship co-dependence, marital status (married), family support, impulsivity, antisocial attitudes, and criminal history (incarcerated for violent offense, medium/maximum risk). Some of these measures are intuitive (e.g. age), while others require further explanation. All of the scales described herein are additive scales created by summing the values of the z-scores for the items included in the scale and dividing by the number of items. We used additive scaling techniques instead of other scaling techniques (e.g. factor analysis) in order to afford equal weight to each item in the scale.3

Reading level was provided by the Midwestern state and reflects each inmate’s score on the Test of Adult Basic Education. The measures of abused as child and abused as

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2We excluded drug violations from the nonviolent infraction category because there is a preference in the literature to treat these types of rule violations separately (Harer & Steffensmeier, 1996; Steiner & Wooldredge, 2013). We considered examining drug violations separately, but too few women engaged in these offenses (<5%) during the study period to generate reliable estimates.

3All of the individual items used in the scales are listed in Wright, Steiner, & Toto, 2017.
adult were created using survey items that inquired if a women had ever been sexually or physically abused prior to their incarceration, as well as when the abuse occurred (before age 18, after age 18, or both). Following Meade and Steiner (2013), we compared the unique effects of age-specific physical abuse and sexual abuse measures to the effects of the combined measures of abused as child and abused as adult in preliminary analysis. The combined measures demonstrated greater predictive strength than the unique measures, and so we retained those for the final analyses. The measures mental health problem and substance abuse problem reflect official diagnoses made by prison medical staff. Relationship co-dependency is a 10-item scale ($a = 0.91$) adapted from the Spann–Fischer Codependency Scale (Fischer, Spann, & Crawford, 1991), and includes statements such as “Sometimes I feel bored or empty if I don’t have someone else to focus on” and “Sometimes I get focused on one person to the extent of neglecting other relationships and responsibilities”. Family support is a four-item scale based ($a = 0.94$) on the family subscale of Zimet, Dahlem, Zimet, and Farley’s (1988) Perceived Social Support Scale that was adapted to inquire about support women received from their family outside of prison (e.g. “My family really tries to help me” “I can get the emotional help and support I need from my family”).

Impulsivity is a five-item scale ($a = 0.85$) taken from the survey that was based on the impulse control dimension of Tangney, Baumeister, and Boone’s (2004) brief self-control scale, and includes questions related to whether a person can resist temptation, work effectively toward long-term goals, and think about all options prior to acting on a behavior. We examined the relevance of the entire self-control scale in preliminary analysis, but it demonstrated less

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4Mental health problem included diagnoses for anxiety (dissociative and somatoform disorders), anxiety (general anxiety and panic disorders), bipolar disorders, dementia/organic disorders, depression and major depressive disorders, developmental disabilities, dysthymia/neurotic depression, impulse control disorders, personality disorders, posttraumatic stress disorder (PTSD), psychosis/psychotic disorders, schizophrenia, sleep/movement/eating disorders. Most of the women with a mental health problem were diagnosed with more than one of these disorders (60%). The most common diagnoses were for PTSD, depression, and anxiety (dissociative and somatoform disorders).
predictive strength than the impulsivity sub-scale, and so we included the latter in the final analysis. Antisocial attitudes is a four-item scale (a ¼ 0.79) adapted from items contained in the Jesness Inventory-Revised (Jesness, 1991) and the Criminal Sentiments Scale-Modified (Simourd & Oliver, 2002) that assesses inmates’ attitudes toward authority (e.g. “I hardly ever get fair treatment” “The law doesn’t seem to help people”. Medium/ maximum risk reflects whether an inmate was scored medium or maximum risk on the Midwestern state’s custodial risk assessment. The assessment primarily measures inmates’ prior criminality by including items such as their prior offenses, institutional misbehavior from prior incarcerations (if relevant), gang involvement, and so forth. We combined women designated as medium and maximum risk into a single category because too few women were designated as maximum risk (i.e.;::2%). We also examined separate measures of prior incarcerations, gang involvement, and prior rule violations in preliminary analyses, but the effects of these measures were nonsignificant once medium/maximum risk was controlled. For the measure of race/ethnicity, we used non-black inmates as the reference category. In preliminary analyses, we included black-not Hispanic, Hispanic, and other race as separate measures of race (relative to white), but Hispanic and other race were nonsignificant and including them in the model did not substantively impact the black-not Hispanic effect. For this reason, and because very few Hispanic women (<4%) or women of a race/ethnicity other than black, white, or Hispanic (<5%) were incarcerated in the prison under study, we only included black-not Hispanic in the final analysis.

Statistical analysis

The dichotomous prevalence outcomes were examined using logistic regression analysis, while the limited count incidence outcomes were examined using negative binomial regression (see Table 1 for means and standard deviations). For the logistic regression analysis, the natural log of time served was included in the model as a control variable to adjust for exposure time. We included the natural log of time served as an offset variable in the negative binomial models. Prior to estimating the final models, we examined the predictor variables for multicollinearity, which was not a problem here (i.e. all tolerance values >0.5).

Results
Table 1 shows that 13% of the women in this Midwestern state prison perpetrated a violent offense during their incarceration, while 30% committed a nonviolent infraction.

**Violent offenses**

Table 2 contains the results of the analysis of the prevalence and incidence of violent rule infractions. The background characteristics associated with violent offending in prison were age (incidence only), race, sexual orientation (prevalence only), abuse as child, relationship co-dependence (prevalence only), family support (incidence only), impulsivity, antisocial attitudes, medium/maximum risk, and incarcerated for violent offense. Younger women, black women, those who identified as lesbian, gay, or bisexual, women abused as a child, more impulsive women, those with more antisocial attitudes, women incarcerated for a nonviolent offense, and those designated medium/maximum risk were at higher risk for committing violent infractions. Women who were more codependent had lower odds of perpetrating a violent offense, but codependency had no effect on women’s rate of violent offending, whereas women who perceived higher levels of family support committed fewer violent offenses, but family support did not impact women’s odds of committing this type of offense. A woman’s history of abuse during adulthood, mental health problems, substance abuse problems, marital status, education, and reading level did not affect the prevalence or incidence of violent infractions.

Based on the odds ratios and incident rate ratios generated from the analyses (see Table 2), the background characteristics that had the strongest effects on women’s violent offending were race, sexual orientation, child abuse, impulsivity, antisocial attitudes, and risk designation. For instance, women abused during childhood had 261% higher odds of perpetrating violence and a 100% higher rate of violent offending relative to those who were not abused as children. Women designated medium/maximum risk had 226% higher odds of violent offending and a 110% higher rate of violent offending compared to those designated low risk. Altogether, the significant predictors in the model accounted for 47% of the variation in the prevalence of violence and 33% of the variation in the incidence of violence.
Table 2. Effects of women’s background characteristics on violent rule violations.

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Prevalence</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>exp(b)</td>
</tr>
<tr>
<td>Intercept</td>
<td>-5.06</td>
<td>0.98</td>
</tr>
<tr>
<td>(1.06)</td>
<td>(0.79)</td>
<td></td>
</tr>
<tr>
<td>Predictors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.02</td>
<td>0.98</td>
</tr>
<tr>
<td>(0.02)</td>
<td>(0.01)</td>
<td></td>
</tr>
<tr>
<td>Black-not Hispanic</td>
<td>1.44</td>
<td>4.20</td>
</tr>
<tr>
<td>(0.38)</td>
<td>(0.27)</td>
<td></td>
</tr>
<tr>
<td>Lesbian, gay, or bisexual</td>
<td>0.87</td>
<td>2.38</td>
</tr>
<tr>
<td>(0.33)</td>
<td>(0.25)</td>
<td></td>
</tr>
<tr>
<td>Reading level</td>
<td>-0.07</td>
<td>0.93</td>
</tr>
<tr>
<td>(0.06)</td>
<td>(0.05)</td>
<td></td>
</tr>
<tr>
<td>&lt;High school diploma</td>
<td>0.28</td>
<td>1.32</td>
</tr>
<tr>
<td>(0.31)</td>
<td>(0.23)</td>
<td></td>
</tr>
<tr>
<td>Abused as child</td>
<td>1.28</td>
<td>3.61</td>
</tr>
<tr>
<td>(0.43)</td>
<td>(0.31)</td>
<td></td>
</tr>
<tr>
<td>Abused as adult</td>
<td>-0.62</td>
<td>0.54</td>
</tr>
<tr>
<td>(0.36)</td>
<td>(0.26)</td>
<td></td>
</tr>
<tr>
<td>Mental health problem</td>
<td>0.34</td>
<td>1.41</td>
</tr>
<tr>
<td>(0.40)</td>
<td>(0.29)</td>
<td></td>
</tr>
<tr>
<td>Substance abuse problem</td>
<td>0.09</td>
<td>1.09</td>
</tr>
<tr>
<td>(0.32)</td>
<td>(0.24)</td>
<td></td>
</tr>
<tr>
<td>Relationship codependence</td>
<td>-0.57</td>
<td>0.57</td>
</tr>
<tr>
<td>(0.22)</td>
<td>(0.16)</td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>-0.60</td>
<td>0.55</td>
</tr>
<tr>
<td>(0.44)</td>
<td>(0.34)</td>
<td></td>
</tr>
<tr>
<td>Family support</td>
<td>-0.27</td>
<td>0.77</td>
</tr>
<tr>
<td>(0.16)</td>
<td>(0.12)</td>
<td></td>
</tr>
<tr>
<td>Impulsivity</td>
<td>0.52</td>
<td>1.68</td>
</tr>
<tr>
<td>(0.22)</td>
<td>(0.17)</td>
<td></td>
</tr>
<tr>
<td>Antisocial attitude</td>
<td>0.65</td>
<td>1.91</td>
</tr>
<tr>
<td>(0.20)</td>
<td>(0.14)</td>
<td></td>
</tr>
<tr>
<td>Incarcerated for violent offense</td>
<td>-0.86</td>
<td>0.42</td>
</tr>
<tr>
<td>(0.42)</td>
<td>(0.25)</td>
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</tr>
<tr>
<td>Medium/maximum risk</td>
<td>1.18</td>
<td>3.26</td>
</tr>
<tr>
<td>(0.52)</td>
<td>(0.23)</td>
<td></td>
</tr>
<tr>
<td>Natural log of time served (in months)</td>
<td>0.91</td>
<td>2.48</td>
</tr>
<tr>
<td>(0.15)</td>
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<td></td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.47</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>665</td>
<td></td>
</tr>
</tbody>
</table>

Notes. Unstandardized coefficients (with standard errors), odds ratios and Nagelkerke $R^2$ from a logistic regression for prevalence outcome reported. Unstandardized coefficients (with standard errors), incident rate ratios, and McFadden’s $R^2$ from a negative binomial regression for incidence outcome reported. $p < 0.05.$
Table 3 contains the results from the analyses of the prevalence and incidence of non-violent infractions. The background characteristics associated with these outcomes included age, race, sexual orientation, reading level, abused as child (incidence only), abused as adult (incidence only), mental health problems, impulsivity, antisocial attitudes, incarcerated for violent offense, and risk designation. Younger women, black women, those who identified lesbian, gay, or bisexual, women with a mental health problem, more impulsive women, those with more antisocial attitudes, and women designated medium/maximum risk were more at risk to commit a nonviolent infraction and committed a greater frequency of these infractions relative to their counterparts. Experiencing abuse had no effect on a woman’s odds of committing a nonviolent infraction, but women who were abused during childhood committed a higher frequency of nonviolent infractions relative to those who were not abused, whereas women who were abused during adulthood committed fewer nonviolent infractions than women who were not abused. In contrast, women with a higher reading level and women incarcerated for a violent offense had lower odds of perpetrating a nonviolent infraction and perpetrated fewer nonviolent infractions than women with a lower reading level and women incarcerated for a nonviolent offense. Substance abuse problem, relationship codependence, family support, did not affect nonviolent rule infractions among women.

Regarding the strength of the observed effects (see Table 3), race, sexual orientation, mental health problems, impulsivity, antisocial attitudes, and risk designation had the strongest effect on nonviolent offending among the background characteristics examined. Women designated medium/maximum risk, for example had 88% higher odds of violent offending and a 92% higher rate of nonviolent offending compared to those designated low risk. Women diagnosed with a mental illness had 126% higher odds of committing a nonviolent infraction and a 53% higher rate of nonviolent infractions relative to women without these problems. The significant predictors in the models explained 50% of the variation in the prevalence of nonviolent offending and 33% of the variation in the incidence of nonviolent offending.
Table 3. Effects of women’s background characteristics on nonviolent rule violations.

<table>
<thead>
<tr>
<th></th>
<th>Prevalence</th>
<th>Incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>exp(b)</td>
</tr>
<tr>
<td>Intercept</td>
<td>-2.56 (0.74)</td>
<td>-1.97 (0.44)</td>
</tr>
<tr>
<td>Predictors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-0.03* (0.01)</td>
<td>0.97 (0.01)</td>
</tr>
<tr>
<td>Black—not Hispanic</td>
<td>0.68* (0.33)</td>
<td>1.97 (0.17)</td>
</tr>
<tr>
<td>Lesbian, gay, or bisexual</td>
<td>0.98* (0.26)</td>
<td>2.68 (0.14)</td>
</tr>
<tr>
<td>Reading level</td>
<td>-0.10* (0.05)</td>
<td>0.90 (0.03)</td>
</tr>
<tr>
<td>&lt;High school diploma</td>
<td>-0.01 (0.24)</td>
<td>0.99 (0.12)</td>
</tr>
<tr>
<td>Abused as child</td>
<td>0.34 (0.29)</td>
<td>1.40 (0.11)</td>
</tr>
<tr>
<td>Abused as adult</td>
<td>-0.51 (0.28)</td>
<td>0.60 (0.16)</td>
</tr>
<tr>
<td>Mental health problem</td>
<td>0.82* (0.29)</td>
<td>2.26 (0.16)</td>
</tr>
<tr>
<td>Substance abuse problem</td>
<td>-0.39 (0.26)</td>
<td>0.68 (0.14)</td>
</tr>
<tr>
<td>Relationship codependence</td>
<td>-0.11 (0.17)</td>
<td>0.90 (0.10)</td>
</tr>
<tr>
<td>Married</td>
<td>0.22 (0.29)</td>
<td>1.25 (0.16)</td>
</tr>
<tr>
<td>Family support</td>
<td>0.01 (0.13)</td>
<td>1.01 (0.09)</td>
</tr>
<tr>
<td>Impulsivity</td>
<td>0.37* (0.17)</td>
<td>1.45 (0.09)</td>
</tr>
<tr>
<td>Antisocial attitude</td>
<td>0.33* (0.16)</td>
<td>1.39 (0.08)</td>
</tr>
<tr>
<td>Incarcerated for violent offense</td>
<td>-0.66* (0.32)</td>
<td>0.52 (0.14)</td>
</tr>
<tr>
<td>Medium/maximum risk</td>
<td>0.63* (0.26)</td>
<td>1.88 (0.14)</td>
</tr>
<tr>
<td>Natural log of time served (in months)</td>
<td>1.08 (0.12)</td>
<td>2.95 (0.08)</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.50</td>
<td>0.33</td>
</tr>
<tr>
<td>N</td>
<td>665</td>
<td></td>
</tr>
</tbody>
</table>

Notes. Unstandardized coefficients (with standard errors), odds ratios and Nagelkerke R² from a logistic regression for prevalence outcome reported. Unstandardized coefficients (with standard errors), incident rate ratios, and McFadden’s R² from a negative binomial regression for incidence outcome reported. *p ≤ 0.05.
Discussion and conclusions

During the period of mass incarceration in the U.S., the rate of growth among women in prison far exceeded the rate for men (Beck & Harrison, 2001; Guerino, Harrison, & Sabol, 2011), and the rate of decrease for women during the current period of decline for the U.S. prison population has been less significant than the rate for men (Carson & Anderson, 2016). Yet, despite the growth in the population of women in prison and the number of prisons for women, few researchers have examined the adjustment patterns of women while they are in prison, let alone their risk factors for institutional offending (Cain et al., 2016; Steiner et al., 2014; Steiner & Wooldredge, 2014b; Van Voorhis et al., 2010; Wright et al., 2007).

Inmate rule violations threaten institutional safety and order, both of which are high priorities for prison administrators. An understanding of the risk factors for offending in prison is also relevant to public safety because inmates who engage in prison rule breaking are also more likely to continue to offend after they are released (Cochran, 2014; Cochran et al., 2014; Cochran & Mears, 2017; Trulson et al., 2011). To contribute to the literature regarding the predictors of misbehavior among women, we examined the relevance of a wide range of background characteristics for predicting violent and nonviolent rule violations perpetrated by women confined in a Midwestern prison. The use of a large sample of women permitted examination of a number of these potential sources of prison offending in multivariate regression models. We discuss our findings below.

We found evidence that some of the background characteristics we examined were very prevalent among the women confined in this Midwestern prison. Experiencing abuse as a child, abuse during adulthood, low education, and suffering from a mental illness were all common (> or ::60%) among the women in this prison, while prison officials diagnosed nearly 40% of the women with a substance abuse disorder. On the other hand, most women felt supported by their family. Our findings uncovered that racial and sexual minorities were overrepresented in this prison relative to their representation in the general population in this state. In general, these findings are consistent with those from other studies of women’s behavior patterns in prison, especially regarding abuse, mental health problems, and substance use among women (Giallombardo, 1966; Kruttschnitt & Gartner, 2003; Owen, 1998; Steiner & Wooldredge, 2009a; Van
Voorhis et al., 2010; Ward & Kassebaum, 1965).

The most consistent predictors of women’s institutional misbehavior, however, were not necessarily those that were most prevalent among women. Impulsivity, antisocial attitudes, risk designation, age, child abuse, race, and sexual orientation were the most robust and strongest predictors of violent and nonviolent offending among women in prison. We observed that more impulsive women, those with antisocial attitudes, and women with more significant criminal histories (reflected by their risk designation) were more at-risk for violent and nonviolent offending. These findings are consistent with those derived from studies of prison offending among both men and women (Steiner et al., 2014), and underscore the relevance of dimensions such as the capacity for self-regulation for understanding offending among women in prison (Komarovskaya et al., 2007). That is, women with less impulse control, those with negative attitudes toward authority, and women who have demonstrated a greater propensity for offending in the past are also more likely to exhibit continuity in anti-social behavior in prison (Andrews & Bonta, 2010; Steiner & Wooldredge, 2009a, 2014a, 2014b). We also found that a history of child abuse is a salient risk factor for women’s offending in prison (see also Cain et al., 2016; Van Voorhis et al., 2010). Research among general population samples has demonstrated that early victimization is a strong predictor of subsequent misbehavior, violence, and aggression (English, Widom, & Brandford, 2001; Widom & Massey, 2015; Widom & Maxfield, 2001); mounting evidence (including the findings from this study) is beginning to highlight child- hood abuse as an important risk factor for later misbehavior across different types of people and settings (i.e. women and men, non-offenders and offenders, general population and institutional settings). Further, racial and sexual minorities were more at-risk for offending in prison. The significant race effects observed here are consistent with findings from other studies of women in prison (Cain et al., 2016; Houser et al., 2012; Kruttschnitt & Gartner, 2005; Steiner & Wooldredge, 2009a), but as far as we are aware, our findings regarding sexual orientation are new to the extant literature on women’s offending in prison. It could be that these marginalized groups are more at risk for victimization in prison, which in turn, contributes to their higher odds of offending, whether as a means of retaliation or as a result of stress, fear, or hypervigilance stemming from their heightened victimization risk (Meyer, 2003; Woods, 2017). Moving for- ward, studies examining the behavior of
system-involved women would benefit from including measures of these characteristics when possible.

Our findings suggest that some factors may only be relevant to particular types of offending among institutionalized women (e.g. mental illness predicts nonviolent offending). We examined diagnosed mental health problems that included a wide range of illnesses (e.g. depression, anxiety, PTSD, psychosis) and our findings comport with those from prior studies that have shown mental health problems to be risk factors in institutional settings (Houser et al., 2012; Houser & Welsh, 2014; Steiner & Wooldredge, 2009a). However, our results revealed mental illness to be a risk factor only for nonviolent, but not violent, offending in prison. Similarly, we found that experiencing abuse as an adult was related to a lower incidence of nonviolent rule violations, while higher reading levels also protected women from nonviolent misbehavior. None of these factors were related to violent rule violations among women, though. On the other hand, relationship codependence and family support were only related to less violence among women, but not nonviolence. More research here is needed to confirm the consistency of these findings, but we suggest that studies which only examine one type of offending (e.g. violent) or pooled measures of all misconduct among women within prison may not fully capture the relevant predictors for their misbehavior.

It is also possible that our results underscore the importance of utilizing specific measures of certain concepts, such as mental health and abuse, in order to understand their unique effects on each type of outcome. Our mental health measures included a variety of diagnosed problems including anxiety, depression, PTSD (the most prevalent problems), along with impulse control problems, psychosis, and schizophrenia. It is possible that less prevalent forms of mental health problems – such as psychosis, schizophrenia, and impulse control – would be related to violent misbehavior. It is also possible that the Midwestern state in which we conducted our study appropriately identifies and treats at-risk offenders.

5 Few studies of the effect of relationships on women’s institutional behavior have been conducted, and our results are counter to the findings of Van Voorhis and colleagues (Van Voorhis et al., 2010; Wright et al., 2007); however, this is likely due to the fact that we examined different aspects of relationships in the current study (e.g. support) rather than only measures which tapped relationships outside of prison (as Van Voorhis and colleagues examined).
women who suffer from mental health problems, so that they do not engage in violent misbehavior (Pew Research Center, 2017). A somewhat similar argument may account for the finding that adult abuse was negatively related to nonviolent misbehavior. It is possible that for women who experienced adult abuse, prisons serve as a “safe haven” (Bradley & Davino, 2002) for them, and as such, they are less likely to act out (especially in a nonviolent way). Moreover, our results may highlight the importance of separating childhood abuse from adult- hood abuse; our findings suggest that it is possible that studies examining child abuse and adult abuse as a combined measure may inaccurately wash out the significance of victimization, since child abuse increases misbehavior while adult victimization reduces it. It is important to note that adult abuse was significant in only one out of four models, though, so further inquiry is necessary to determine whether this pattern of results holds in future studies.

  Relatedly, some measures were only weakly or inconsistently related to women’s rule-breaking, despite their high prevalence among women in our sample. For instance, a substance abuse problem was not related to institutional offending at all, while abuse as an adult and mental health problems were only related to nonviolent infractions, and the effect of abuse as an adult was not significant and/or not in the expected direction. These findings may be curious to some, given the relatively high prevalence (e.g. >60%) of some of these problems among the women studied here.

  However, our results, along with those from a few other studies (Cain et al., 2016; Radatz & Wright, 2017), point to the need for additional research regarding the prevalence of these problems among women offenders versus their effects on various out- comes. Accumulating evidence appears to suggest that although some problems are very prevalent among women offenders (McDaniels-Wilson & Belknap, 2008), they do not necessarily predict their problem behaviors (Cain et al., 2016; Radatz & Wright, 2017). Some have offered an “overexposure” or “saturation” hypothesis (Cain et al., 2016; Radatz & Wright, 2017) in that higher exposure to problems (such as victimization or mental health problems) dulls or weakens their effects over time, but the true mechanisms remain unknown. We encourage continued research on this topic.

  Finally, some factors were not related to women’s rule
violations at all, such as those reflecting women's involvement in conformist activities like marriage and educational level. The hypothesized protective effect of marriage may have been reduced by our inclusion of more proximate measures of relationships (e.g. family support, codependency), which assesses variation in the quality of women's relationship more so than discrete indicators of involvement in a relationship such as marital status. Women also come to prison with a higher level of education than men (Harer & Langan, 2001; Steiner & Wooldredge, 2014b), so education may be less of “need” for women. Some studies of women in prison have found weak or null relationships between level of education and rule violations (Houser et al., 2012; Steiner & Wooldredge, 2009a), whereas studies of men have found education to be more consistently associated with lower odds of offending (Huebner, 2003; Morris, Carriaga, Diamond, Piquero, & Piquero, 2012; Steiner & Wooldredge, 2008; Toch et al., 1989; Wooldredge et al., 2001; but see Harer & Langan, 2001). Taken together, these findings call into question the applicability of measures of conformist behaviors such as educational level and marriage for predicting women's offending in prison and raise the possibility that these factors may operate slightly differently for females within this setting.

A few limitations of the study bear mention. First, our study was limited to women confined in a single prison in the Midwest. At the time of the study, renovations to the prison had recently been completed that provided housing and services more suited to the needs faced by incarcerated women than traditional prisons designed for men. The prison was significantly understaffed, however, which limited prison officials from utilizing all of the institution's resources. It is unclear whether these facility characteristics affected our findings, but researchers might wish to replicate our analyses with data collected from women in other states and in other prison environments. Second, our outcome measures were derived from official measures of inmate rule violations. Official measures of rule violations have been determined to be valid indicators of inmate misbehavior (Steiner & Wooldredge, 2014a; Van Voorhis, 1994), but readers should bear in mind the limitations of these measures (e.g. under- reporting by inmates and/or correctional staff) when interpreting the findings. Future studies may want to investigate the robustness of relationships observed here using self-reported rule violations as
outcomes. Third, we did not assess measures pertaining to women’s prison experiences. Scholars have highlighted the potential relevance of women’s routines in prison for understanding their offending patterns (Bloom et al., 2003; Steiner & Wooldredge, 2009a). Future studies may want to collect data inclusive of women’s routines in prison, though longitudinal data would be needed in order to rule out concerns related to the temporal ordering of events. Finally, it is worth noting that, although the research on men’s offending in prison greatly exceeds the research on women, very few studies have examined the potential relevance of some of the risk factors assessed here (e.g. abuse, relationship codependence) for men (but see Cain et al., 2016; Steiner & Wooldredge, 2009a).

Although research conducted among women has highlighted the importance of some background factors for shaping women’s justice system involvement (e.g. abuse, mental health, and relationships), these risk factors could also be relevant for men, even if they occur less often for men. In addition to the continued assessment of the predictive capabilities of these risk factors among women, an additional avenue for future research could be to assess whether they operate differently for predicting men’s offending in prison (Kruttschnitt, 2016).

The limitations of the study notwithstanding, our findings offer some new insights into the relevance of a number of background characteristics for understanding women’s offending in prison. Impulsivity, antisocial attitudes, risk designation, age, child abuse, race, and sexual orientation were most reliably related to violent and nonviolent outcomes, while other risk factors (e.g. mental illness, abuse as an adult, and relationship codependence) were only related to nonviolent or violent offending in prison, but not both. Finally, some

Particularly relevant for this study could be differences in how officers treat some female inmates (e.g. blacks, sexual minorities) compared to others. We are unaware of any studies of differential treatment pertaining to these groups among women, but some ethnographic studies have uncovered that female inmates are “officially” charged with prison rule violations at higher rates than men (Bloom et al., 2003). On the other hand, Steiner and Wooldredge (2014a) compared the predictors of self-reported assaults, drug, and property offenses to the predictors of comparable measures of officially detected rule violations, and observed that, regardless of the type of data examined, men and women had similar odds of committing an assault and males were more likely to commit a drug offense. They found no differences in rates of self-reported property offenses between men and women, but men had higher rates of officially detected property offenses, suggesting that officers may have been more likely to officially charge men with property offenses compared to women. Nonetheless, it remains unclear if particular groups of women are treated differently within prisons. Future studies should investigate this possibility.
factors were not related to women’s rule violations at all, such as those reflecting women’s involvement in conformist activities, while some were only weakly or inconsistently related to women’s rule-breaking, despite their high prevalence in our sample (e.g. substance use). These findings, along with the limitations of this study provide some important avenues for future inquiry. The growth in the population of incarcerated women demands further attention issues faced by women in prison and those responsible for their care.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on Contributors

Benjamin Steiner is a professor in the School of Criminology and Criminal Justice at the University of Nebraska at Omaha. He holds a PhD from the University of Cincinnati.

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Sara Toto is a doctoral student in the School of Criminology and Criminal Justice at the University of Nebraska, Omaha. She holds an MA in criminal justice from the University of Nevada, Reno. Her primary research interests include institutional and community-based corrections.

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A prospective examination of


