Assessing the Relationship between Exposure to Violence and Inmate Maladjustment Within and Across State Correctional Facilities

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ABSTRACT

Offenders are exposed to violence at higher rates than the general population. Whether exposure to violence contributes to subsequent maladjustment once these individuals are incarcerated, however, is unclear. Equally important could be whether the relationship between exposure to violence and inmate maladjustment differs across confinement facilities, and whether particular features of prison environments (e.g., rates of violence) shape differences in the magnitude of this relationship. Inmate maladjustment threatens the safety and order of correctional institutions, so a thorough understanding of the relative effects of exposure to different forms of violence on maladjustment is important to prison/correctional facility administrators. Using data from the Survey of Inmates in State and Federal Correctional Facilities and the Census of State and Federal Correctional Facilities, we examined the relationship between exposure to violence and maladjustment within and across state operated prisons and correctional facilities in the United States. Our findings revealed that exposure to violence prior to incarceration impacted inmates' maladjustment after imprisonment. We also found that exposure to some types violence (e.g., abuse as a child) was more likely to contribute to inmate maladjustment compared to exposure to other types of violence. Finally, the magnitude of the relationships between exposure to different types of violence and some forms of maladjustment varied across facilities and the variation in these relationships was influenced by the characteristics of the facilities in which inmates were confined.

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EXECUTIVE SUMMARY

Inmate maladjustment refers to the inability of prisoners to cope with confinement (Adams, 1992). Inmate maladjustment is a high priority for correctional administrators because it can disrupt institutional order and safety, and interfere with inmate rehabilitation. Maladjustment often manifests itself through disruptive behavior and/or mental health problems (Toch, Adams, & Grant, 1989). Extant studies have examined individual and institutional predictors of maladjustment, but very few of these studies have examined the influence of exposure to violence on inmate maladjustment.

Researchers have discovered that exposure to violence is related to maladjustment among general population samples, and other studies have demonstrated a significant overlap in the victim and offender populations (e.g., Lauritsen & Laub, 2007; Sampson & Lauritsen, 1994). These findings suggest that offenders are exposed to violence to a greater degree than the general population, but research examining the effect of exposure to violence prior to incarceration on maladjustment to confinement remains sparse. Additionally, none of the existing studies have examined whether this relationship varied by the type of violence to which inmates were exposed. Further, no studies have assessed whether the exposure to violence-inmate maladjustment relationship varies across facilities or whether these differences are impacted by the characteristics of the prison environments in which inmates are confined. Such information is critical for informing practical methods for reducing the problem such as classification instruments, treatment modalities, and supervision strategies. For the purpose of providing useful information on this subject, we examined data from the Survey of Inmates in State and Federal Correctional Facilities and the Census of State and Federal Adult Correctional Facilities.

BACKGROUND

A growing body of literature has provided evidence that exposure to violence contributes to indicators of maladjustment such as mental illness, drug use, violence, and so forth (e.g., Clements et al., 2008; Eitle & Turner, 2002; Fagan, 2005; Finkelhor et al., 2009; Luthra et al., 2009; Thornberry et al., 2001; Widom, 1989a, 1989b; Widom & Maxfield, 2001). Scholars have framed this relationship within subcultural or learning theories (Spaccarelli, Coatsworth, & Bowden, 1995; Widom, 1989b). Researchers have also linked exposure to violence and maladjustment using lifestyle/routine activities theories or perspectives on individual heterogeneity and state dependence (for overviews, see Johnson-Reid, 1998; Lauritsen & Laub, 2007; Sampson & Lauritsen, 1994). Strain theories have also been used to explain the exposure to violence-maladjustment relationship (e.g., Agnew, 2001; Hay & Evans, 2006). Finally, exposure to violence may result in trauma, which could be related to the onset of symptoms of post-traumatic stress disorder (PTSD) and concomitant aggressive behavior or substance use as a result of this disorder (APA, 2000; Ardino, 2012; Fowler Tompsett, Braciszweski, Jacques-Tiura, & Baltes, 2009). The current study was informed by each of these perspectives, but space limitations prohibit a detailed discussion here. Suffice it to say, that this study was designed to inform existing theoretical and empirical work by: 1) extending this line of research to prison inmates; and, 2) assessing whether exposure to violence during different periods of individuals' development (e.g., childhood) impacts maladjustment at a later stage of their life course (incarceration).

Evidence derived from studies of inmate or former inmate samples suggests that inmates who were exposed to violence prior to their incarceration were also more likely to experience indicators of maladjustment prior to their incarceration (McClellan et al., 1997; Spaccarelli et al., 1999). Researchers have also uncovered that exposure to violence within prison influences

maladjustment within prison and upon release (Boxer et al., 2009; Listwan et al., 2010; Wooldredge, 1999). To date, however, only Steiner and Wooldredge (2008, 2009a, 2009b) examined whether exposure to violence prior to incarceration influenced maladjustment within prison. They revealed that whether an inmate had been physically or sexually abused was positively related to both male and females' odds of assault and nonviolent misconduct.

CURRENT STUDY

This study was designed to build upon the extant research by examining the relationship between exposure to violence prior to incarceration and inmate maladjustment among a nationally representative sample of inmates housed in state confinement facilities. First, we examined the relative effects of exposure to different forms of violence on inmate maladjustment. Studies conducted on general population samples have revealed variability in the effects of exposure to different types of violence on maladjustment (Luthra et al., 2009; Wilson, Stover, & Berkowitz, 2009), and so it is logical to expect variation in the magnitude of effects of exposure to different types of violence on inmate maladjustment. Second, we examined the effects of exposure to violence prior to incarceration on several different indicators of inmate maladjustment, including different types of inmate misconduct (e.g., violent versus drug) and mental health problems (e.g., manic symptoms, depression symptoms). Researchers have observed differences in the effects of exposure to violence across different indicators of maladjustment among general population samples (e.g., mental health problems versus violence) (Fowler et al., 2009; Wilson et al., 2009). Finally, we examined whether the relationships between the measures of exposure to violence on maladjustment varied across facilities, and if so, whether characteristics of facility environments (e.g., rates of violence) conditioned these relationships. None of the existing studies have examined whether the potential exposure to

violence-inmate maladjustment relationship is influenced by the prison environments in which inmates are confined. Related research on general population samples is also limited (Fowler et al., 2009). In order to address these gaps in the extant research, the following, specific research questions were examined:

1. Controlling for differences in the facilities housing these inmates, and other relevant inmate characteristics, what are the relative effects of exposure to different forms of violence on inmates' maladjustment within prison (e.g., drug violations, mental health outcomes)?

2. Do the effects of exposure to different forms of violence on maladjustment differ in their magnitude across facilities?

3. What are the relative effects of facility characteristics on maladjustment rates across prisons (rates of assaults, mental health outcomes)?

4. If the effects of exposure to different forms of violence on maladjustment differ across facilities (research question 2), are these differences impacted by differences in the characteristics of facility environments (e.g., rates of facility violence)?

METHODS

The target population for the study included all of the inmates housed in state operated prisons in the United States with the primary purpose of confinement.

DATA

The data for this study came from the 2004 Survey of Inmates in State and Federal Correctional Facilities (ICPSR 4572) and the 2000 Census of State and Federal Adult Correctional Facilities (ICPSR 4021); these data sets were merged for the purposes of this study. The sample of inmates was selected in a two stage process, facilities were selected in stage one, followed by inmates at stage two. Federal inmates and inmates held in community-based facilities or boot camps were excluded due to unmeasured differences in inmate populations, organization structure, and facility culture that exist between these facilities and state confinement facilities. After inmates housed in these facilities and cases with missing data were

removed, we were left with a final sample size of 12,044 or 12,023 inmates (depending on the outcome examined) across 242 facilities.

MEASURES

The outcome measures included the prevalence and incidence of misconduct, as well as mental health problems. Consistent with prior research, we divided misconduct into assaults, drug/alcohol violations, and other nonviolent misconduct (e.g., Harer & Steffensmeier, 1996; Steiner & Wooldredge, In Press). Mental health problems were measured through four variables, a dichotomous indicator of whether inmates had been admitted to a hospital for an overnight stay for a mental health problem since their admission to prison and three additive scales reflecting the number of mania, depression, and delusional symptoms inmates experienced in the past year.

The measures of direct exposure to violence included variants of whether inmates reported they had been sexually or physically victimized, when the victimization occurred (e.g., before age 18), their relationship with the perpetrator, whether a weapon was used, and whether they were injured. All told, 45 different measures of direct exposure to violence were examined.

The facility-level measures of indirect exposure to violence included the proportion of inmates incarcerated for a violent offense, and a facility's assault and homicide rate per 100 inmates for each facility. The assault and homicide rates were taken from the 2000 Census of Facilities, and thus were independent of the misconduct outcomes used in the study. These measures were logged because of their skewed distribution.

Individual- and prison-level control variables were selected based on their inclusion/significance in prior studies of inmate maladjustment. The inmate-level measures included age, sex, race/ethnicity, committing offense type, prior incarceration, used drugs in the month before an arrest, associated with antisocial peers before arrest, conventional behaviors,

child(ren), mental health problems in the year before arrest, the natural log of time served (in months), and the natural log of hours at an institutional work assignment. Facility-level measures included maximum security facility and crowding.

ANALYTICAL PLAN

The first step in the analyses involved comparing the strength of the bivariate relationships between the different measures of exposure to violence and the indicators of maladjustment. Both Pearson's *r* values and odds ratios were computed for the analyses of the prevalence measures of misconduct and the measure of overnight hospitalization for mental health problems, while Pearson's *r* values and event rate ratios were estimated for the analyses of the incidence measures of misconduct and symptoms of mental health problems. Pearson's *r* values were based on weighted analyses performed in SPSS 19.0. Odds ratios and event rate ratios were generated from analyses performed in the software package HLM 6.08. Hierarchical Bernoulli regression was used to estimate the relationships between each exposure to violence measure and each prevalence measure of misconduct, along with the measure of overnight hospitalization for mental health problems. Hierarchical Poisson regression with a correction for overdispersion was used to estimate the bivariate relationships between exposure to violence and the incidence of misconduct, as well as the relationships between exposure to violence and the mental health outcomes. The HLM software was used to adjust for problems created by hierarchical data structures such as inmates nested within prisons (e.g., non-independence of error terms).

After the bivariate relationships between exposure to violence and maladjustment were estimated, the strongest predictors of maladjustment were selected and entered into multivariate, multi-level models. Tri-level data files were created (inmates nested within prisons and prisons nested within states) to adjust for problems associated with hierarchical data structures, but the

models estimated for this study were technically bi-level models because they only included measures at the inmate- and facility-levels of analyses. Estimation of the multi-level multivariate models permitted an examination of whether the effects of the measures of exposure to violence were still related to the indicators of maladjustment once other relevant predictors of maladjustment were controlled. These models also permitted an examination of whether the relationships between the measures of exposure to violence and maladjustment varied across facilities, and if so, a subsequent examination of the sources of that variation.

RESULTS

The findings from this study revealed that the level of exposure to violence among this national sample of inmates confined in state correctional facilities was relatively high; nearly 71 percent of inmates were exposed to some type of violence. Thirty-nine percent of inmates were abused as a child, while nearly half of the inmates were victimized as adults. Ten percent of inmates were victims of sexual assault, while 70 percent of inmates were physically victimized. Among the inmates who were exposed to violence, 60 percent were victimized by someone known to them, while 43 percent were victimized by a stranger.

The bivariate analyses of exposure to violence and misconduct revealed that nearly all the measures of exposure to violence were related to misconduct, but some of these effects were stronger than others. We categorized the measures of exposure to violence into three groups: general measures of exposure to types of violence, exposure to types of violence as a child, and exposure to types of violence as an adult. Among the general measures of exposure to violence, the effects of any victimization and physical victimization were generally the most consistent and strongest predictors of the different types of misconduct. Abuse as child, physical abuse as child, and physical abuse as child with injury were the measures of exposure to violence as a

child that had the strongest and most consistent effects on the three types of misconduct, while assault as adult by nonstranger, physical assault as adult by nonstranger, and physical assault as adult w/weapon were generally the most consistent and strongest predictors of the different types of misconduct among the measures of exposure to violence as an adult.

The analyses of mental health problems revealed that exposure to any victimization, any victimization more than once, any victimization by a nonstranger, sexual victimization, physical victimization, physical victimization more than once, and physical victimization by a nonstranger were the most consistent and strongest predictors of experiencing mental health problems among the general measures of exposure to violence. The measures of exposure to violence as a child that were the strongest and most consistent predictors of experiencing symptoms of mental health problems included abuse as child, abuse as child by nonstranger, sexual abuse as child, physical abuse as child, physical abuse as child by nonstranger, and physical abuse as child w/injury. Assault as an adult by nonstranger, assault as adult by intimate partner, sexual assault as adult, sexual assault as adult by nonstranger, physical assault as adult by nonstranger, and physical assault as adult by intimate partner were the most consistent and strongest predictors of experiencing symptoms of the three mental health problems among the measures of exposure to violence as an adult. Thus, the pattern of findings for the analyses of mental health problems was, for the most part, consistent with the findings from the analyses of misconduct. The one major exception was the impact of sexual victimization, which had stronger and more consistent effects on mental health problems compared to misconduct.

Based primarily on the results from the bivariate analyses, we selected abuse as child, sexual assault by nonstranger as adult, and physical assault by nonstranger as adult as the measures of exposure to violence to include in multivariate models of inmate maladjustment. The decision to

select these three measures was also based on the goals of 1) offering the most unique information and greatest improvement in prediction of multiple indicators of maladjustment (i.e., including separate measures of exposure to different types of violence rather than a pooled measure of exposure to any victimization or measures that were not mutually exclusive); and, 2) minimizing recall error likely to be associated with exposure to violence as a child in future studies (e.g., including any abuse as a child versus physical abuse as a child).

The multivariate analyses of the prevalence and incidence of misconduct revealed very similar results. Controlling for the relevant predictors of misconduct, inmates who were abused as children were more likely to commit assaults, drug/alcohol infractions, and other nonviolent misconduct. Experiencing sexual assault as an adult was not associated with the prevalence of any form of misconduct or the incidence of assaults or other nonviolent misconduct. Inmates who were sexually assaulted as an adult did commit a higher incidence of drug/alcohol infractions. Inmates who were physically assaulted as an adult were more likely to commit assaults and nonviolent misconduct (prevalence and incidence), but physical assault as an adult was not related to either the prevalence or incidence of drug/alcohol infractions.

The multivariate analyses of mental health problems revealed that inmates who were abused as children experienced more mental health problems. Specifically, abuse as a child was related to higher odds of hospitalization for mental health problems, and to experiencing a higher number of manic, depression, and delusional symptoms. Experiencing sexual assault as an adult was also related to each of the mental health outcomes; sexual assault as an adult was associated with higher odds of mental health hospitalization and higher numbers of manic, depression, and delusional symptoms. The effects of physical assaults as an adult, however, were inconsistent across mental health outcomes. Experiencing physical assault as an adult had no effect on the

odds of hospitalization for mental health problems or the number of delusional symptoms, but experiencing physical assault as an adult was associated with experiencing a higher number of both manic and depression symptoms.

Regarding the analyses of random effects (research question 2), only the effects of exposure to violence on the incidence of misconduct varied across facilities; the effects of child abuse and physical assault as an adult varied across facilities for each type of misconduct, while the effect of sexual assault as an adult on assaults and drug/alcohol violations varied across facilities. In light of these findings, facility-level effects on these level-1 intercepts and slopes were estimated.

Examination of the main effects of the facility-level measures of indirect exposure to violence revealed that the proportion of inmates incarcerated for a violent offense was associated with higher rates of all types of misconduct. Facilities that reported higher rates of assaults in the 2000 Census also had higher rates of self-reported assaults and other nonviolent misconduct, but not drug/alcohol infractions. In contrast, facilities that had higher homicide rates had higher rates of drug/alcohol infractions, but a facility's homicide rate had no effect on assault rates or rates of other nonviolent infractions.

The result of the slopes as outcomes models revealed that the positive relationship between abuse as a child and the incidence of assaults was stronger in facilities with higher homicide rates and in maximum security facilities, while the positive relationship between abuse as a child and the incidence of other nonviolent misconduct was stronger in facilities that were more crowded. The positive relationships between sexual assault by a nonstranger as an adult and the incidence of assaults and drug/alcohol violations were amplified in facilities with higher levels of crowding, while the relationship between sexual assault by a nonstranger as an adult and the incidence of drug/alcohol violations was weaker in facilities with higher assault rates and

facilities with higher homicide rates. The positive relationship between physical assault by a nonstranger as an adult and the incidence of assaults was stronger in facilities that had higher rates of assaults and homicides, as well as in facilities that were more crowded. The positive relationship between physical assault by a nonstranger as an adult and the incidence of drug/alcohol violations was also stronger in facilities with higher assault rates, and in maximum security facilities. Confinement in a maximum security facility also amplified the effect of physical assault by a nonstranger as an adult on the incidence of other nonviolent misconduct.

CONCLUSIONS

This study involved an examination of the effects of exposure to violence on inmate maladjustment. The findings revealed that exposure to violence prior to incarceration increased maladjustment within prison, even after controlling for other known correlates of maladjustment. The analyses also uncovered that effects of exposure to some forms of violence on maladjustment were greater in magnitude than the effects of exposure to other types of violence. For instance, both child abuse and physical assault as an adult by nonstrangers were robust predictors of maladjustment, relative to other measures of exposure to violence. We also found evidence that the effects of exposure to different forms of violence varied according to the outcome examined. Sexual assault as an adult by nonstrangers, for example, was an important predictor of mental health problems, but not the prevalence or incidence of misconduct.

The majority of the relationships between exposure to violence and maladjustment did not vary across facilities; that is, these effects were consistent across inmates regardless of the prison in which they were confined. However, the effects of exposure to violence on the incidence of misconduct did vary across facilities, and so we explored the main and moderating effects of facility characteristics on incidence rates and the relationships between the indicators of exposure

to violence and the incidence of the different types of misconduct. Analysis of the main effects of the facility characteristics indicated that, to a degree, indirect exposure to violence influenced level of maladjustment. Facilities housing a greater proportion of violent offenders had higher rates of misconduct, and facilities with higher assault rates or homicide rates also had higher rates of some types of misconduct. Analysis of the moderating effects of facility characteristics on the exposure to violence-maladjustment relationship revealed inconsistent results across models, however. More research is needed regarding the conditioning effects of facility environments on the relationship between direct exposure to violence and maladjustment.

The results of this study hold important policy implications for correctional administrators. Prior victimization appears to be a factor that officials should consider when making housing and security decisions; exposure to violence was generally related to higher odds/incidence of misconduct. In addition, findings from the analyses of mental health problems revealed that exposure to different forms of violence were associated with poorer mental health among inmates. Thus, including indicators of victimization experiences in needs assessments may facilitate identifying individuals in need of treatment or counseling.

Given the consistent findings of abuse as a child and assaults as an adult in the multivariate models of maladjustment, future researchers should consider including these measures as standard predictors in multivariate models of misconduct. In conjunction, sexual victimizations were important predictors of inmate mental health, and scholars may wish to consider including measures of a history of sexual abuse in analyses pertaining to inmates' mental health.

The findings regarding indirect or environmental exposure produced mixed results. The main effects of indirect exposure to violence contributed to higher incidence rates of misconduct. However, the moderating effects of facility characteristics on the direct exposure to violence-

misconduct relationships were inconsistent. These findings, coupled with the fact that most of the relationships between the measures of exposure to violence and the indicators of maladjustment did not vary across facilities, suggest that focusing on the main effects of indirect exposure to violence may be more fruitful than focusing on moderating effects. Either way, the findings from this study underscore the need for further research regarding facility-level measures of exposure to violence and/or how they may condition the individual-level relationships.

INTRODUCTION

Inmate maladjustment refers to the difficulty or inability of individuals to adapt to or cope with the confinement experience. Indicators of maladjustment include mental health problems and disruptive behavior (Adams, 1992; Toch et al., 1989). Mental health problems may include psychoses, anxiety, and depression, while disruptive behavior includes antisocial acts, most of which would violate institutional rules (Adams, 1992). An understanding of the causes/correlates of inmate maladjustment is important for a number of reasons. First, inmate maladjustment may threaten institutional order and safety, both of which are high priorities of correctional administrators (DiIulio, 1987; Gendreau, Goggin, & Law, 1997). Second, maladjustment also has implications for inmates' long-term well-being; maladjustment can interfere with inmates' rehabilitation and long-term behavioral change (Adams, 1992). Finally, an understanding of the influences of inmate maladjustment can also be informative for developing practical methods to reduce or control the problem, such as assessment tools, treatment modalities, and structured inmate routines (Adams, 1992; Toch et al., 1989; Wright, 1993).

Extant studies of inmate maladjustment have revealed that inmates' pre-incarceration characteristics and features of facility environments impact maladjustment (e.g., Wooldredge, 1999; Steiner & Wooldredge, 2008), but very few of these studies have focused on whether exposure to violence impacts maladjustment. Researchers have uncovered a link between victimization and offending (e.g., Lauritsen & Laub, 2007; Sampson & Lauritsen, 1994; Shaffer & Ruback, 2002), which suggests that offenders are exposed to violence at higher rates than the general population. However, it is less clear whether offenders who were exposed to violence prior to their incarceration are more likely to become maladjusted after their incarceration, or whether the relationship between exposure to violence and maladjustment is influenced by

differences in the characteristics of the facility environments in which those inmates are confined.

A number of studies have linked exposure to violence to indicators of maladjustment (e.g., mental illness, offending) within general population samples (e.g., Clements et al., 2008; Eitle & Turner, 2002; Fagan, 2005; Finkelhor et al., 2009; Smith & Ecob, 2007; Widom, 1989a, 1989b). Very few studies have examined this relationship among inmate samples (e.g., Steiner & Wooldredge, 2009a, 2009b), and none of these studies have examined whether this relationship varied by the type of violence to which inmates were exposed. Similarly, none of the existing studies of inmate samples have examined whether the relationship between exposure to violence and maladjustment varies across facilities and whether these differences are impacted by characteristics of facility environments. Practitioners and academics have long recognized the potential influence of both inmate *and* environmental characteristics on maladjustment (e.g., Goodstein & Wright, 1989), however, only recently have researchers begun to reliably examine the relative influences of these two levels of factors, not to mention whether they interact (e.g., Camp et al., 2003; Huebner, 2003; Steiner & Wooldredge, 2008, 2009a, 2009b; Wooldredge et al., 2001). Such information is important because it could shed light on which types of inmates may be better suited for some types of environments versus others.

For the purpose of providing useful information on this subject, we examined data from the Survey of Inmates in State and Federal Correctional Facilities and the Census of State and Federal Adult Correctional Facilities. We assessed the effects of exposure to different types of violence (e.g., child abuse versus intimate partner violence) on different forms of misconduct (e.g., assault versus drug/alcohol) and different types of mental health problems (mania versus depression). We also examined whether these relationships varied across facilities, and if so,

whether the strength of these relationships were moderated by characteristics of the facilities (e.g., rate of violence) in which these inmates were confined.

DIRECT EXPOSURE TO VIOLENCE AND MALADJUSTMENT

The hypothesized relationship between exposure to violence and various indicators of maladjustment (e.g., offending, mental illness) has been framed within subcultural or learning theories, lifestyle/routine activities theories, strain theory, or a general trauma response (PTSD) model. Learning theories, for instance, posit that exposure to violence might teach individuals violent behavior and attitudes (Akers, Krohn, Lanza-Kaduce, & Radovich, 1979). Observing or experiencing violence could model violent behaviors. Individuals may then imitate those behaviors (Johnson-Reid, 1998; Widom, 1989b). Repeated exposure to violence may teach individuals that violence is an appropriate method for solving problems, and individuals exposed to repeated violence may develop internalized norms and attitudes that justify or support the use of violence (Spaccarelli, Coatsworth, & Bowden, 1995). On the other hand, exposure to violence may also disrupt prosocial learning processes (Clements, Oxtoby, & Ogle, 2008). Individuals who reside in violent environments may have limited exposure to examples of healthy social adjustment, and the emotional extremes exhibited by cohabitants with violent tendencies may interfere with their ability to interpret emotional cues and regulate their own mental or emotional states (Clements et al., 2008).

Lifestyle and routine activities theories emphasize the potential for daily routines and lifestyle patterns to alter victimization risk (Cohen & Felson, 1979; Miethe & Meier, 1994). The link between exposure to violence and offending is explained by the overlap the in characteristics, lifestyles, and routines of offenders and victims (Cohen & Felson, 1979; Miethe & Meier, 1994). Offenders' lifestyles may bring them into proximity with other offenders, as

individuals are more likely to victimize persons or places within their social network; thus, victimization risk may be proportional to the number of characteristics shared with offenders (Shaffer & Ruback, 2002; Smith & Ecob, 2007). In addition, offenders are more likely to use alcohol and drugs which may make them incapable guardians. Offenders can also be victimized with a lower risk of legal consequences (Shaffer & Ruback, 2002). Finally, researchers have revealed that victims and offenders are concentrated in the same geographic areas (e.g., disadvantaged neighborhoods, prisons), which contributes to higher odds that those individuals at risk for victimization will come into contact with potential offenders (Lauritsen & Laub, 2007; Wooldredge & Steiner, In Press).

Strain theories may also be relevant to the hypothesized relationship between exposure to violence and maladjustment. Strain theory posits that stressful life events (e.g., exposure to violence) create negative emotional or mental states (Agnew, 1985). Individuals may turn to crime and/or drug use in order to cope with strain. Violent victimization is a traumatic even that may be perceived as an intense and undeserved strain (Agnew, 2001; Hay & Evans, 2006). Therefore, exposure to violence may provoke negative emotions such as anger, resentment, depression, and anxiety (Hay & Evans, 2006). Victimization may also be a strain that creates pressure for retaliation. Violent and property offending may satisfy a desire for revenge against those responsible for the initial injury or may assist in venting frustration (Hay & Evans, 2006). Exposure to violence might also lead to substance use as a means to cope with the emotional or mental distress induced from victimization.

Finally, the impact of exposure to violence on maladjustment could also be framed within a model of trauma exposure or post-traumatic stress disorder (PTSD). Experiencing child abuse and/or a violent or sexual assault is a traumatic event which may induce symptoms of PTSD

(Fowler Tompsett, Braciszweski, Jacques-Tiura, & Baltes, 2009; Luthra et al., 2009). For example, as a result of a violent victimization, individuals may experience flashbacks, vivid memories, or nightmares of the event; they may experience avoidance or numbing; and they may suffer from heightened arousal or hypervigilance (APA, 2000). In addition to (or as a result of) experiencing mental health problems, individuals may react to trauma negatively, such as by acting aggressively or using illegal substances (Ardino, 2012; Kilpatrick, Ruggiero, Acierno, Suanders, Resnick, & Best, 2003).

In support of the theoretical linkages outlined above, there is considerable evidence to suggest that there is a relationship between direct exposure to violence and indicators of maladjustment (Jennings, Piquero, & Reingle, 2011). For instance, Widom (1989a) found that suffering abuse and/or neglect as a child or during adolescence was associated with increased rates of delinquency, adult criminality, and violent behavior (see also Widom & Maxfield, 2001). Shaffer and Ruback (2002), along with Smith and Ecob (2007), observed that experiencing victimization increased individuals' odds of offending. Other studies have provided evidence of a relationship between exposure to violence and other indicators of maladjustment, such as attitudes supportive of violence (Dube, Anda, Felitti, Edwards, & Williamson, 2002; Scarpa, 2003; Simon, Anderson, Thompson, Crosby, Shelley, & Sacks, 2001; Spaccarelli et al.,1995; Whitfield, Anda, Dube, & Felitti, 2003), drug use, partner violence (Fagan, 1995), and mental health problems (Campbell, 2002; Clements et al. 2008; Luthra et al. 2009; Murray, Ehlers, & Mayou, 2002; Thornberry et al. 2001).

INDIRECT EXPOSURE TO VIOLENCE AND MALADJUSTMENT

In addition to direct exposure to violence, researchers have also uncovered that indirect exposure to violence can affect maladjustment (Buka, Stichick, Birdthistle, & Earls, 2001; Eitle

& Turner, 2002; Lynch, 2003). Particularly relevant may be exposure to violent environments such as individuals' neighborhoods of residence. The level of violence within an area impacts the odds area residents will observe violence. Individuals are more likely to observe violence in areas with higher levels of violence, and observations of violent behaviors could serve to model those behaviors. Individuals may then imitate those behaviors (Johnson-Reid, 1998; Widom, 1989b). Individuals who are indirectly exposed to violence repeatedly may come to believe that violence is an appropriate means of solving problems; these individuals may develop attitudes that tolerate or support violence as a means of resolving conflicts (Spaccarelli et al., 1995). Individuals who reside in violent environments may also have limited exposure to examples of pro-social behavior, which could disrupt the learning of these behaviors (Clements et al., 2008).

Exposure to environments that are more violent might also amplify the individual-level effect of exposure to violence on maladjustment. Specifically, indirect exposure to environmental violence could encourage maladjustment by stimulating a response that was fostered by experiencing direct exposure to violence. In partial support of these ideas, researchers have found that witnessing violence contributes to higher rates of mental health problems, aggression and offending (Buka et al., 2001; Eitle & Turner, 2002; Lynch, 2003).

EXPOSURE TO VIOLENCE AND INMATE MALADJUSTMENT

Findings such as those reviewed above suggest that offenders are exposed to violence (directly or indirectly) at higher rates than the general populations (see also Lauritsen & Laub, 2007; Sampson & Lauritsen, 1994; Shaffer & Ruback, 2002; Singer, 1981; Smith & Ecob, 2007), yet very few studies have examined whether exposure to violence influences maladjustment within offender populations, let alone once these individuals are incarcerated. Evidence derived from studies of inmate or former inmate samples suggests that inmates who

were exposed to violence prior to their incarceration were also more likely to experience indicators of maladjustment prior to their incarceration (McClellan et al., 1997; Spaccarelli et al., 1999). Researchers have also uncovered that exposure to violence within prison influences maladjustment within prison and upon release. For example, Wooldredge (1999) found that inmates who experienced a violent victimization in prison were more likely to feel insecure, stressed, depressed, angry, lonely, and experienced lower self-esteem. Boxer et al. (2009) found that offenders who were exposed to violence during incarceration had higher odds of exhibiting antisocial behavior and emotional distress after their release. Listwan et al. (2010) uncovered that offenders exposed to violence in prison experienced more psychological trauma, PTSD symptoms, and symptoms of depression and anxiety compared to offenders who were not exposed to violence in prison. As far as we are aware, however, only Steiner and Wooldredge (2008, 2009a, 2009b) examined whether exposure to violence prior to incarceration influenced maladjustment within prison. They revealed that whether an inmate had been physically or sexually abused was positively related to both male and females' odds of assault and nonviolent misconduct.

CURRENT STUDY

This study was designed to advance existing research in several ways. First, we examine the exposure to violence-inmate maladjustment relationship using a nationally representative sample of inmates housed in state confinement facilities, thereby increasing the generalizeability of the results. Steiner and Wooldredge (2008, 2009a, 2009b) also examined this relationship using earlier waves of the data series that are used here; however, their studies only assessed the relationship between a pooled measure of whether an inmate had suffered any abuse (physical or sexual) and misconduct (one indicator of maladjustment). We expand on their findings here by

assessing the relative effects of different measures of exposure to violence prior to inmates' current admission to prison (e.g., child abuse versus spousal abuse) on maladjustment. Studies conducted on general population samples have revealed variability in the effects of exposure to different types of violence on maladjustment (Luthra et al., 2009; Wilson, Stover, & Berkowitz, 2009), and so it is logical to expect variation in the magnitude of effects of exposure to different types of violence on inmate maladjustment. Third, we also examine the effects of exposure to violence prior to incarceration on several different indicators of inmate maladjustment, including different types of inmate misconduct (e.g., violent versus drug) and mental health problems (e.g., manic symptoms versus depression symptoms). Researchers have observed differences in the effects of exposure to violence across different indicators of maladjustment among general population samples (e.g., mental health problems versus violence) (Fowler et al., 2009; Wilson et al., 2009). Finally, we also examine whether the relationship between exposure to violence and maladjustment varies across facilities, and if so, whether it is moderated by characteristics of the facilities in which the inmates were confined. None of the existing studies have examined whether the potential exposure to violence-inmate maladjustment relationship is influenced by the prison environments in which inmates are confined. Related research on general population samples is also limited (Fowler et al., 2009).

Examination of the relationship between exposure to violence prior to incarceration and maladjustment to prison may improve our understanding of the inmate maladjustment process and inform the development of practical methods to reduce the problem (e.g., assessment instruments, treatment programs). Aside from these advances, however, the findings from this study may also contribute to the limited information regarding the long-term effects of exposure to violence (Fagan, 2005; Thornberry et al., 2001; Widom & Maxfield, 2001). Examination of

this relationship with an incarcerated sample also overcomes some of the concerns regarding a causal link between exposure to violence and maladjustment (see, e.g., Johnson-Reid, 1998; Lauritsen & Laub, 2007; Widom, 1989a). In particular, examination of the effect of exposure to violence prior to incarceration on maladjustment during incarceration ensures the temporal ordering of these two events and reduces concerns that exposure to violence and maladjustment are spuriously related because individuals who have been incarcerated are, for the most part, "knifed off" from the environment in which they were exposed to violence, as well as their former social networks (Lauritsen & Laub, 2007; Laub & Sampson, 2003).

Uncovering a link between exposure to violence prior to incarceration and inmate maladjustment may also offer support for some of the theories discussed above, while potentially refuting others. For instance, evidence of a relationship between exposure to violence prior to incarceration and maladjustment in prison would support hypotheses stemming from learning theories; these theories posit that exposure to violence may model violent behavior which individuals may then imitate (even after an individual is incarcerated) (e.g., Akers et al., 1979; Widom, 1989). Similarly, an observation that exposure to violence prior to incarceration increases individuals odds of maladjustment after incarceration would also support models of trauma exposure or post-traumatic stress disorder (PTSD). Individuals who are exposed to violence may suffer from mental health problems, act aggressively, or use illegal substances even in stages of their life course that are well after the traumatic event occurred (e.g., incarceration) (Ardino, 2012; Kilpatrick et al., 2003). On the other hand, if a relationship between exposure to violence prior to incarceration and maladjustment does exist, such a findings may not be taken as support for lifestyle or routine activities theories; these perspectives suggest that the link between exposure to violence and offending is explained by the overlap in

the characteristics, lifestyles, and routines of offenders and victims (Cohen & Felson, 1979; Miethe & Meier, 1994). As discussed above, however, prison inmates are "knifed off" from their family, associates, and neighborhood of residence during their term of imprisonment. Support for strain theories could also be questioned if a relationship between exposure to violence pre-incarceration and inmate maladjustment is observed because the negative emotions resulting from the strain caused by exposure to violence would have to persist during the time between when an individual was exposed to violence (e.g., childhood) and their incarceration. Such a scenario seems unlikely.

OTHER KNOWN CORRELATES OF INMATE MALADJUSTMENT

Examination of the effects of exposure to different forms of violence on inmate maladjustment requires consideration of other correlates of maladjustment that can be included in a statistical model as control variables. Relevant predictors of maladjustment may include inmates' preincarceration characteristics, their routines in prison, and facility characteristics. For instance, studies have shown that age is related to maladjustment; younger inmates have greater difficulty adjusting to incarceration. Younger inmates have been shown to have higher odds of misconduct (e.g., Arbach-Lucioni, Martinez-Garcia, & Andrés-Pueyo, 2012; Cunningham & Sorensen, 2006; Griffin & Hepburn, 2006; Morris, Longmire, Buffington-Vollum, & Vollum, 2010; Steiner & Wooldredge, 2008). Younger inmates may also find the prison environment more alienating and may experience a greater fear of victimization, which could lead to higher levels of anger, depression, paranoia, or other mental distress (MacKenzie, 1987). Few studies have examined the effect of sex on maladjustment, but existing studies have yielded inconsistent evidence regarding the effect of sex on misconduct (e.g., Andia et al., 2005; Drury & DeLisi, 2008; Drury & DeLisi, 2010). Studies have found, however, that female inmates have higher

prevalence rates of mental illness than male inmates (e.g., James & Glaze, 2006; Lord, 2008; Morash & Schram, 2002). Extant findings regarding the impact of race on maladjustment are also mixed, although some research indicates that black and/or Hispanic inmates have higher odds of assaultive behavior in prison (Camp, Gaes, Langan, & Saylor, 2003; Griffin & Hepburn, 2006; Morris et al., 2010; Sorensen, Cunningham, Vigen, & Woods, 2011; Steiner & Wooldredge, 2009a; 2009b). Race may also have an effect on mental illness. Toch and colleagues (1987) argued that black inmates, who are often pulled from urban areas with high crime rates, may develop high levels of suspicion, mistrust, and/or paranoia in order to protect themselves from violence. Black inmates, then, may be more likely to exhibit a higher number of mental health problems, which may become aggravated when adapting to the stressors of the prison environment.

Indicators of inmates' criminal history may also be relevant. The effects of different committing offense types (e.g., violent, property) have been mixed across studies of misconduct (Drury & DeLisi, 2008; Griffin & Hepburn, 2006; Steiner & Wooldredge, 2008; Wooldredge, Griffin, & Pratt, 2001), but researchers have found that, compared to incarceration for other offenses, incarceration for a violent offense has been linked to higher rates of mental illness, emotional distress, or suicide in prison (Blaauw, Kerhof, & Hayes, 2005; Silver, Felson, & Vaneseltine, 2008; Way, Miraglia, Sawyer, Beer, & Eddy, 2005). Measures of criminal history and a history of antisocial behaviors, including prior incarcerations, drug use, and association with antisocial peers, have consistently been associated with higher odds of misconduct (Andia et al., 2005; Arbach-Lucioni et al., 2012; Berg & DeLisi, 2006; Berk, Kriegler, & Baek, 2006; Cunningham & Sorensen, 2006; Drury & DeLisi, 2008; Gaes, Wallace, Gilman, Klein-Saffran, & Suppa, 2002; Griffin & Hepburn, 2006; Steiner & Wooldredge, 2009a; 2009b; Wooldredge &

Steiner, 2009). These variables have also been associated with greater mental health problems in prison. For example, researchers have found that inmates with a history of prior incarcerations or substance use/abuse have an increased risk of suicide and mental illness (Blaauw, et al., 2005; Silver et al., 2008; Way et al., 2005). Further, a history of mental illness prior to incarceration may also contribute to maladjustment within prison. Studies have revealed that inmates with preexisting mental conditions have higher odds of misconduct and mental health problems in prison (Applebaum, Hickey, & Packer, 2001; Hayes, 1995; Steiner & Wooldredge 2009a; Steiner & Wooldredge 2009b; Way et al., 2005; Wolff, Shi, Blitz, & Siegel, 2007).

Involvement in conventional behaviors may aid adjustment among inmates. Researchers have often examined the effects of education, marital status, pre-arrest employment, and children on maladjustment. The evidence concerning these variables has been mixed among studies of misconduct (e.g., Andia et al., 2005; Gover, Perez, & Jennings, 2008; Huebner, 2003; Jiang & Winfree, 2006; Morris et al., 2010; Steiner & Wooldredge, 2009a; 2009b). On the other hand, inmates with more conventional ties to society may be less likely to experience mental distress, and some research suggests that inmates with previous employment, education, and more social contact/support (e.g., spouse, children) are less likely to exhibit mental health symptoms and commit suicide (Friestad & Hansen, 2005).

Regarding inmate routines or factors that shape inmates' environments, the relationship between time served and misconduct has been consistent across studies; inmates who have served more time are more likely to engage in misconduct (Drury & DeLisi, 2008; Gover et al., 2008; Steiner & Wooldredge, 2008; 2009a; 2009b). In regards to inmates' mental health, the stress associated with imprisonment may become more pronounced over time. On the other hand, some scholars have argued that earlier periods of confinement may be more difficult for

inmates in terms of adjustment, and so mental distress and suicide risk may be more prevalent during this period of imprisonment (Hayes, 1995; Toch et al., 1989; Way et al., 2005). Researchers have also found that inmates who are involved in work assignments within prison are less likely to commit rule violations (Huebner, 2003; Steiner & Wooldredge, 2008; 2009a; 2009b; Wooldredge & Steiner, 2009). Involvement in an institutional work assignment may also help to ameliorate some of the stressors of incarceration (e.g., idle time), thus, inmates who are involved in a work assignment may experience fewer mental health problems while incarcerated (e.g., Friestad & Hansen, 2005).

At the facility level, certain structural features may impact levels of maladjustment and moderate the exposure to violence-maladjustment relationship. Based on the extant literature, the factors that may be most relevant are those that tap into facility crowding and facility security level (e.g., Griffin & Hepburn, 2008; Huebner, 2003; Steiner & Wooldredge, 2008; Steiner & Wooldredge, 2009a; Wooldredge & Steiner, 2009). Crowding has been linked to higher levels of stress among inmates (Paulus, McCain and Cox, 1985; Steiner & Wooldredge, 2009), and so if there is a link between exposure to violence and inmate maladjustment, crowding could amplify that relationship. The environments of maximum security facilities are often more sterile and authoritative compared to less secure facilities, and even though supervision is greater in maximum security facilities, these facilities also contain more dangerous and high risk inmates. For all of these reasons, maximum security facilities are generally associated with higher levels of misconduct (Huebner, 2003; Steiner & Wooldredge, 2009a; Steiner & Wooldredge, 2009b). Confinement in such an environment might also amplify the potential effect of exposure to violence on inmate maladjustment.

METHODS

The study described here was designed to assess the effects of exposure to violence on inmate maladjustment within and across prisons. The following specific questions were addressed:

1. Controlling for differences in the facilities housing these inmates, and other relevant inmate characteristics, what are the relative effects of exposure to different forms of violence on inmates' maladjustment within prison (e.g., drug violations, mental health outcomes)?

2. Do the effects of exposure to different forms of violence on maladjustment differ in their magnitude across facilities?

3. What are the relative effects of facility characteristics on maladjustment rates across prisons (e.g., rates of assaults, mental health outcomes)?

4. If the effects of exposure to different forms of violence on maladjustment differ across facilities (research question 2), are these differences impacted by differences in the characteristics of facility environments (e.g., rates of violence)?

DATA

The target population for the study included all of the state operated prisons in the United States with the primary purpose of confinement. The data used for the study come from two different sources: the 2000 Census of State and Federal Adult Correctional Facilities (ICPSR 4021) and the 2004 Survey of Inmates in State and Federal Correctional Facilities (ICPSR 4572), both of which are collected by the U.S. Bureau of Census for the Bureau of Justice Statistics. The two datasets were merged in order to create a multi-level data set. Inmate-level data were culled from the 2004 Survey of Inmates in State and Federal Correctional Facilities, while the facility level data included measures aggregated from the survey data, as well as measures derived from the 2000 Census of State and Federal Adult Correctional Facilities.

The 2004 Survey of State and Federal Correctional Facilities is a nationally representative sample of inmates housed in both state and federal facilities and provides self-report data

regarding each inmate's current offense and sentence, criminal history, family background and personal characteristics, prior drug and alcohol use, and prison activities, programs and services. The analyses reported here were restricted to inmates confined in state-operated facilities with the primary purpose of confinement. Federal inmates and inmates held in community-based facilities or boot camps were excluded due to unmeasured differences in inmate populations, organizational structure, facility culture, and so forth.

The sample of inmates housed in state-operated facilities was selected in a two-stage process, where facilities were selected in the first stage and inmates were selected at stage two. State operated facilities enumerated in the 2000 Census of State and Federal Adult Correctional Facilities served as the sampling frame for stage one. The facilities were first stratified by the sex of the inmates housed. The largest facilities were then selected with certainty (14 facilities for men and seven facilities for women), while the remaining facilities were sub-stratified by region of the country, ordered by size, and then randomly selected based on probabilities proportionate to size. This process resulted in a sample of 283 facilities. In the second stage of sampling, inmates were randomly selected for interviews from each facility from a list of all inmates who had occupied a bed the previous night, resulting in a sample of 14,499 inmates. Interviews, which were roughly an hour in length, were conducted using computer-assisted personal interviewing. Before the interview, researchers from the Census Bureau advised the inmates verbally and in writing that participation in the study was voluntary and that all information provided would be kept confidential. Participants were also assured that the survey was solely for statistical purposes and that no individual who participated would be identified in survey results.

After the inmates housed in boot camps and community-based facilities were removed from the sample, 12,332 inmates housed in 242 facilities remained. Cases that were missing data on

the measures described below were also removed (N = 288-309, depending on the outcome examined). Comparisons between the descriptive statistics generated from the full sample and the final sample (with missing cases deleted) revealed no significant differences between the two samples with regard to demographic characteristics of the inmates. The Bureau of Census provided a sampling weight based on the inverse of each inmate's odds of selection into the sample, and these weights were normalized and applied to the analyses reported here.

After the final inmate-level sample was created, information contained in the dataset was used to identify the corresponding facilities (in the 2000 Census of State and Federal Adult Correctional Facilities) in which inmates were housed. The 2000 Census of State and Federal Adult Correctional Facilities collected information on the type of facility, jurisdiction operating the facility, size and characteristics of inmate population and staff, security and disturbances within the facility, and the health of the inmate population. Since the census was used as the sampling frame for the survey, the restricted survey data (which were obtained from ICPSR) contained the population count variable derived from the census. The survey also recorded the state in which the inmates were arrested. These two variables facilitated the matching process.

MEASURES

All of the measures used in the analyses are described in table 1. Following prior research, maladjustment was measured with indicators of institutional misconduct and symptoms of mental health problems (e.g., Toch et al., 1989; Kruttschnitt & Gardner, 2005). Both the prevalence and incidence of three types of misconduct (assaults, drug/alcohol, or other nonviolent infractions) were examined. The prevalence of misconduct reflects whether inmates self-reported being written up for the specific type of rule violation since their admission, while the incidence measures reflect the number of times inmates reported that they had been written

up for each type of violation. The three types of misconduct were examined separately based on extant research which has shown that examining different types of misconduct offers unique information relative to the examination of a pooled measure of all misconduct (e.g., Camp et al., 2003; Harer & Steffensmeier, 1996; Steiner & Wooldredge, In Press). The misconduct measures are technically self-reports of official detection of events. Limitations of self-report data include poor memory/recall and unwillingness to admit deviant acts (Hindelang, Hirschi, & Weis, 1979). Official measures of misconduct have also been criticized due to underestimation resulting from correctional officer discretion and under detection of events (Light, 1990). Studies comparing official misconduct and self-reported misconduct have, however, found both types of data to be generally valid and reliable indicators of inmate maladjustment (see, e.g., Hewitt, Poole, & Regoli, 1984; Steiner & Wooldredge, In Press; Van Voorhis, 1994).

– table 1 about here –

The measures of mental health problems are additive scales reflecting the number of manic, depressive, or delusional symptoms each inmate reported they had experienced in the past year and a dichotomous measure of whether inmates reported an overnight hospitalization for mental health problems since their admission to prison. The items that comprise each of the additive scales were chosen based on their alignment with the diagnostic criteria in the DSM IV (APA, 2000). The manic symptoms scale included inmates' responses to 10 survey items that inquired whether inmates had: 1) lost their temper more often than usual; 2) been angry more often than usual; 3) hurt or broken things on purpose just because they were angry; 4) thought a lot about getting back at someone they had been angry with; 5) experienced periods when they could not sit still; 6) experienced times when their thoughts raced so fast they couldn't keep track; 7) experienced an increase/decrease in their activity level compared to the usual level of

functioning; 8) experienced an increase/decrease in sleep; 9) experienced an increase/decrease in appetite; and, 10) experienced an increase/decrease in interest in sex.[1] The 11 items included in the depression symptoms scale were inmates responses to survey items that inquired whether they had: 1) difficulty feeling close to family or friends; 2) experienced periods where they talked or moved more slowly; 3) experienced periods when they couldn't sit still; 4) experienced an increase/decrease in overall activity; 5) experienced an increase/decrease in sleep; 6) experienced an increase/decrease in appetite; 7) experienced an increase/decrease in interest in sex; 8) given up hope for the future; 9) experienced periods when they felt like no one cares about them; 10) experienced periods when they felt numb or empty inside; and, 11) ever considered suicide.[2] Finally, the seven item delusional symptoms scale included inmates' responses to items that asked whether inmates had: 1) negative or frightening dreams that make it difficult to sleep; 2) felt other people could read their mind; 3) had feelings that things don't seem real like in a dream; 4) seen things other people say are not really there; 5) heard voices other people can't hear; 6) whether other people have been able to control their brains; and, 7) if anyone other than corrections staff had been spying or plotting against them were also included.[3] The items included in the delusional symptoms scale reflect some of the diagnostic criteria for

[1] The first four items included in the manic symptom scale are not directly identified as symptoms of a manic episode in the DSM IV. However, one indicator of a manic episode includes an abnormally or persistently irritable mood. The survey does not include any items that measure a persistent elevated or expansive mood, but instead includes these four items which tap irritability or aggression that may be associated with a persistent irritable mood. For this reason, these items were included in the scale reflecting manic symptoms. A reliability analysis of all of the items yielded a Cronbach's alpha of .81, suggesting that the items are internally consistent. Still, it is worth reiterating that this measure of manic symptoms may not be a comprehensive measure of all types of mania.

[2] The items asking about an increase or decrease in functioning, appetite, sleep, and interest in sex were used to create both the manic and depressive symptoms scales. Each item asked if inmates experienced a change in functioning, eating, and so forth, but the questions did not ask inmates to identify the direction (increase/decrease) of the change. In general, manic episodes would result in an increase in these items, while depressive episodes would result in a decrease. However, because the two scales are comprised of the many of the same items, they are highly correlated with one another (r = .87). Readers should bear this in mind when interpreting the findings pertaining to the analysis of the manic and depressive symptoms scales.

[3] Cronbach's alphas for the mental health symptom scales were .81 for the manic symptoms scale, .82 for the depressive symptoms scale, and .68 for the delusional symptoms scale.

some forms of schizophrenia and other psychotic disorders, but each item could not be aligned with a specific diagnosis and so "delusional symptoms" was used. The items used to create the indicator of an overnight hospitalization for mental health problems, and the manic, depressive, and delusional symptoms scales are based on inmates' self-reports, and so the limitations of self-report measures discussed above may also apply to these measures.

The inmate-level measures of exposure to violence included variants of whether inmates reported they had been sexually or physically victimized, when the victimization occurred (e.g., before age 18), their relationship with the perpetrator (e.g., spouse), whether a weapon was used, and whether they were injured. These measures were created from screening questions and corresponding contingency questions on the survey that inquired about inmates' sexual and physical victimization experiences. Sexual assaults were measured with inmates' response to the survey item that asked inmates if anyone had ever pressured or forced them to have any sexual contact against their will prior to their admission. Physical assaults were measured with the inmates' responses to a question that inquired whether, prior to their admission, anyone had ever done any of the following to them: physically abused them, pushed, grabbed, slapped, kicked, bit, or shoved them, hit them with a fist, beat them up, choked, them, or used a weapon (gun, knife, rock, etc.) against them. Directly after the screening questions, inmates were asked a series of contingency questions regarding when the victimization occurred, their relationship with the perpetrator, whether a weapon was used, and whether they were injured.[4]

Predictors of maladjustment used in the multivariate analyses as control variables are also listed in table 1. Demographic predictors of misconduct include each inmates' age in years, whether the inmate was female, and each inmates' race/ethnicity (black, Hispanic, other

[4] The items that inquired whether a weapon was used during the incident or whether an injury was incurred were only asked in reference to physical victimization.

race/ethnicity). White inmates served as the reference category for the race/ethnicity variables. Committing offense type was measured with indicators of whether an inmate was incarcerated for a violent offense, drug offense, property offense, or public order offense. Incarceration for a violent offense was treated as the reference category. Inmates' histories of antisocial behavior were captured through the items that asked inmates whether they had experienced a prior incarceration, used drugs in the month before their arrest, and whether they had associated with an antisocial peer group before their arrest. The measure associated with an antisocial peer group before arrest was derived from a series of survey questions that asked each inmate if they had friends growing up who had engaged in a number of criminal activities ranging from using drugs and vandalism to armed robbery. Conventional behaviors was an additive scale created from the measures that indicated whether an inmate was currently married, had at least a high school diploma, and had a job or business in the month prior to their arrest (see Wooldredge et al., 2001). Child(ren) reflects whether an inmate had a child or children. The measure mental health problems in year before arrest indicates whether inmates had been admitted to a mental hospital, taken medication for a mental illness, or received mental health counseling or other mental health services in the year immediately preceding their arrest. Finally, measures of time served (in months) and the number of hours at work assignment (past week) were also included. The natural log of both measures was taken because the distributions of these variables were skewed.

The facility-level measures of indirect exposure to violence included the proportion of inmates incarcerated for a violent offense, facility assault rate, and facility homicide rate. Assault rate and homicide rate were created by dividing each facility's total number of assaults or homicides reported in the past year by each facility's inmate population and then multiplying the quotient by 100 to reflect the rate per 100 inmates. The facility-level counts of assaults and

homicides were retrieved from the census, and so they are independent of the assault outcomes that were examined here. These counts were also based on a yearlong period prior to the survey date. The natural log of the assault rate and the homicide rate were taken because the original distributions of these scales were skewed. Facility-level measures of whether the facility was a maximum security facility and crowding were included as control variables. Crowding was measured as the ratio of each facility's population to its design capacity.

ANALYTICAL PLAN

The first step in the analyses involved comparing the strength of the bivariate relationships between the different measures of exposure to violence and the indicators of maladjustment. Both Pearson's *r* values and odds ratios were computed for the analyses of the prevalence measures of misconduct and the measure of overnight hospitalization for mental health problems, while Pearson's *r* values and event rate ratios were estimated for the analyses of the incidence measures of misconduct and symptoms of mental health problems. Pearson's *r* values were based on analyses performed in SPSS 19.0. Odds ratios and event rate ratios were generated from analyses performed in the software package HLM version 6.08. Hierarchical Bernoulli regression was used to estimate the relationships between each exposure to violence measure and each prevalence measure of misconduct, along with the measure of overnight hospitalization for mental health problems. Hierarchical Poisson regression with a correction for overdispersion (see table 1 for means and standard deviations) was used to estimate the relationships between exposure to violence and the incidence of misconduct, as well as the relationships between exposure to violence and the mental health outcomes. The HLM software was used to adjust for problems created by hierarchical data structures such as inmates nested within prisons. Specifically, the software adjusts for correlated error among inmates housed

within the same facility and permitted us to control (by group mean centering the predictor variables) for unmeasured facility-level differences that could affect misconduct rates or rates of mental health problems across facilities (possibly due to differences in classification procedures, management practices, and so forth) (Raudenbush & Bryk, 2002).

After the bivariate relationships between exposure to violence and maladjustment were estimated, the strongest predictors of maladjustment were selected and entered into multivariate multi-level models. Estimation of these models permitted an examination of whether the effects of the measures of exposure to violence were still related to the indicators of maladjustment once the other relevant predictors of maladjustment described in table 1 were controlled. The models also permitted an examination of whether the relationships between the measures of exposure to violence and maladjustment varied across facilities, and if so, a subsequent examination of the sources of that variation.

Tri-level data files were created with inmates nested within prisons and prisons nested within states. Creating tri-level data files allowed us to (a) adjust for correlated error among inmates nested within the same facility as well as for correlated error among facilities within the same state, (b) base the hypothesis tests on the appropriate sample sizes (for inmates versus facilities), (c) remove (through group mean-centering the level-1 measures) between-facility variation in inmate characteristics that might correspond with differences in maladjustment rates across facilities, and (d) remove (through group mean-centering the level-2 measures) between-state variation in facility characteristics that might have corresponded with differences in misconduct rates across states, possibly due to differences in the composition of intake populations, state budgets, classification procedures, and management practices. Although we created a tri-level data set to adjust for the correlated error across prisons nested within the same state (i.e., prisons

are not truly independent of the states that operate them) for these analyses, it is important to note that the models displayed here are technically bi-level models because they only include measures at the inmate- and facility-levels of analyses.

The first step in each analysis involved estimating an unconditional model in order to determine the amount of variance in each outcome to be explained within facilities, and to test whether there was significant variation in each outcome across both prisons and states.[5] Next, random effects models including all of the predictor variables were estimated. These models revealed whether the relationship between any of the predictor variables and measures of maladjustment varied across facilities ($p \leq .05$), which would suggest stronger effects in some facilities versus others. Those effects that did not vary across facilities were treated as fixed, or as having a common "slope" across facilities. All of the inmate-level measures were group mean-centered (with the exception of female) in order to remove between-facility variation in inmate characteristics that might have corresponded with differences in misconduct levels or rates of mental health symptoms across facilities (Raudenbush & Bryk, 2002). Next, the level-2 predictors were entered in order to examine whether variation in the level-1 model intercepts might be explained by variation in facility characteristics. Finally, slopes and intercepts as outcomes models were estimated (including both the level-2 main effects and the cross-level interaction effects) to examine the potential moderating effects of the facility measures on the level-1 effects of exposure to violence on maladjustment that varied across facilities. Prior to estimating the final multivariate models, the predictor variables were examined for multicollinearity. Multicollinearity was not a problem here.

[5] The unconditional models of the prevalence of assaults and overnight hospitalization for mental health problems revealed nonsignificant variation in these outcomes across states. For this reason, bi-level models of these outcomes were estimated.

RESULTS

Before delving into the findings from the analyses, a brief description of the level of exposure to violence and maladjustment among this national sample of inmates confined in state correctional facilities may be useful for placing the findings in context. Nearly 71 percent of these inmates were exposed to some type of violence; 39 percent of inmates were abused as a child, while nearly half (49 percent) of these inmates were victimized as adults. Ten percent of inmates were victims of sexual assault, while 70 percent of inmates were physically victimized. Among the inmates who were exposed to violence, 60 percent were victimized by an assailant known to them, while 43 percent were victimized by a stranger.

Over half of the facilities in which these inmates were confined housed primarily (> 50 percent) inmates incarcerated for a violent offense. Over half of the facilities reported more than 2.5 assaults per 100 inmates in a one year period, while nearly 30 percent of the facilities reported 5 assaults per 100 inmates. Approximately, 12 percent of these facilities had rates of at least 10 assaults per 100 inmates. The majority of these prisons did not experience a homicide in a one year period, but among the facilities that did, rates varied from .01 to .14 homicides per 100 inmates.

Regarding maladjustment, 21 percent of these inmates indicated they had committed an assault since their admission to prison, but among those inmates who committed an assault, most committed only one assault. Eight percent of the inmates committed a drug/alcohol infraction, and the typical number of infractions committed by those inmates was between one and two. Nearly half of the inmates (48 percent) committed a nonviolent infraction other than a drug/alcohol offense, and the majority of these inmates committed either one or two infractions. Approximately 74 percent of inmates experienced at least one symptom of mania and among the inmates who experienced manic symptoms, the typical amount of symptoms experienced were

three to four. Nearly 87 percent of inmates experienced a symptom of depression, and among the inmates who reported experiencing a symptom of depression, inmates typically experienced about four symptoms. Only 42 percent of the inmates experienced a delusional symptom; these inmates typically reported experiencing two delusional symptoms.

BIVARIATE ANALYSES OF EXPOSURE TO VIOLENCE AND MALADJUSTMENT

The measures of exposure to violence were categorized into three groups: general measures of exposure to types of violence, exposure to types of violence as a child, and exposure to types of violence as an adult. Tables 2 and 3 contain the results of the bivariate analyses of the relationship between exposure to different forms of violence and the prevalence and incidence of misconduct. The findings from the bivariate analyses of the relationship between exposure to different forms of violence and mental health problems are displayed in Table 4.

Tables 2 and 3 show that exposure to nearly any form of violence increased the odds that inmates committed some form of misconduct, but the strength of some of these effects (versus others) were more pronounced and consistent across the analyses of the prevalence and incidence of the three types of misconduct. Among the general measures of exposure to violence, the effects of any victimization and physical victimization were generally the most consistent and strongest predictors of the different types of misconduct. Abuse as child, physical abuse as child, and physical abuse as child with injury were the measures of exposure to violence as a child that had the strongest and most consistent effects on the three types of misconduct, while assault as adult by nonstranger, physical assault as adult by nonstranger, and physical assault as adult w/weapon were generally the most consistent and strongest predictors of the different types of misconduct among the measures of exposure to violence as an adult. Across all three categories of exposure to violence, physical victimization was more strongly related to all forms of

misconduct, compared to sexual victimization; although, sexual victimization was, for the most part, still significantly associated with misconduct.

– tables 2 and 3 about here –

The results of the bivariate analyses of symptoms of mental health problems contained in table 4 revealed that, similar to the analyses of misconduct, most of the measures of exposure to violence were related to experiencing an overnight hospitalization for mental health problems or experiencing symptoms of at least one mental health problem. Consistent with the findings from the bivariate analyses of misconduct, the effects of exposure to some types of violence were stronger and more consistently related to experiencing mental health problems compared to exposure to other types of violence.

– table 4 about here –

Table 4 shows that exposure to any victimization, any victimization more than once, any victimization by a nonstranger, sexual victimization, physical victimization, physical victimization more than once, and physical victimization by a nonstranger were the most consistent and strongest predictors of experiencing mental health problems among the general measures of exposure to violence. The measures of exposure to violence as a child that were the strongest and most consistent predictors of experiencing symptoms of mental health problems included abuse as child, abuse as child by nonstranger, sexual abuse as child, physical abuse as child, physical abuse as child by nonstranger, and physical abuse as child w/injury. Assault as an adult by nonstranger, assault as adult by intimate partner, sexual assault as adult, sexual assault as adult by nonstranger, physical assault as adult by nonstranger, and physical assault as adult by intimate partner were the most consistent and strongest predictors of experiencing symptoms of the three mental health problems among the measures of exposure to violence as an adult. Thus,

in contrast to the analyses of misconduct, exposure to different forms of sexual abuse as a child and sexual assault as an adult were strongly related to experiencing mental health problems.

Based primarily on the bivariate analyses and tests for collinearity, we selected abuse as child, sexual assault by nonstranger as adult, and physical assault by nonstranger as adult as the measures of exposure to violence to include in multivariate models of inmate maladjustment. The decision to select these three measures was also based on the goals of 1) offering the most unique information and greatest improvement in prediction of multiple indicators of maladjustment (i.e., including separate measures of exposure to different types of violence rather than a pooled measure of exposure to any victimization or measures that were not mutually exclusive); and, 2) minimizing recall error likely to be associated with exposure to violence as a child in future studies (e.g., including any abuse as a child versus physical abuse as a child).

INMATE-LEVEL EFFECTS ON MALADJUSTMENT

Table 5 contains the results of the inmate-level effects of exposure to violence on the prevalence of misconduct. The results of the analysis of the incidence of misconduct are displayed in table 6. Table 7 contains the findings from the analyses of mental health problems.

The analyses of the prevalence of misconduct (table 5) revealed that after controlling for the other relevant predictors of maladjustment, inmates who were abused as children had higher odds of assault, drug/alcohol, and other nonviolent misconduct. Based on the odds ratios generated from the analyses, suffering abuse as a child was associated with a 47 percent increase in the odds of committing an assault, a 43 percent increase in the odds of committing a drug/alcohol infraction, and a 32 percent increase in the odds of committing any other type of nonviolent misconduct. Inmates who had been physically assaulted by a nonstranger had higher odds of assaults and nonviolent misconduct, but not drug/alcohol violations. Experiencing a

physical assault from a nonstranger as an adult was associated with a 40 percent increase in the odds of assault and a 15 percent increase in the odds of perpetrating a nonviolent rule infraction. Experiencing a sexual assault by a nonstranger as an adult was not related to the odds of perpetrating any form of misconduct.

– table 5 about here –

Turning to the effects of the other predictor variables on the prevalence of misconduct, younger inmates and inmates who spent fewer hours at a facility work assignment had higher odds of committing each type of misconduct. Inmates who engaged in antisocial behaviors before their incarceration (prior incarceration, drug use, associated with antisocial peers) and inmates who had served more time had higher odds of perpetrating each type of misconduct. Male inmates had higher odds of assaults and drug/alcohol misconducts than female inmates; an inmate's sex was not related to the odds of committing any other type of nonviolent misconduct. Compared to white inmates, black inmates had higher odds of committing an assault, but an inmate's race (black) was not associated the odds of perpetrating either type of nonviolent misconduct. Relative to inmates incarcerated for a violent offense, inmates incarcerated for a drug offense had lower odds of perpetrating an assault and a nonviolent misconduct, while inmates incarcerated for a property offense had lower odds of committing an assault. Inmates who were involved in more conventional behaviors and inmates who had children were less likely to commit an assault or nonviolent misconduct, but neither conventional behaviors nor children were associated with drug/alcohol violations. Inmates who experienced mental health problems before their incarceration had higher odds of committing an assault and nonviolent misconduct, but not a drug/alcohol infraction. Hispanic, other race/ethnicity, and incarcerated for public order offense were not related to the prevalence of misconduct.

Altogether the significant inmate-level predictors accounted for 33 percent of the within prison variation in assaults, 47 percent of the within prison variation in drug/alcohol violations, and 31 percent of the within prison variation in other nonviolent misconduct.[6] The combined contribution of the exposure to violence measures to the within prison variation explained was 3 percent (assaults), 1 percent (drug/alcohol violations), and 1 percent (other nonviolent misconduct), respectively.[7]

The analyses of the incidence of misconduct (table 6) revealed only a few differences from the analyses of the prevalence of misconduct. Similar to the analysis of the prevalence of misconduct, inmates who were abused as children committed more assaults, drug/alcohol violations, and other nonviolent rule infractions. Based on the event rate ratios generated from the analyses, suffering abuse as a child was associated with a 37 percent increase in the number of assaults, a 29 percent increase in the number drug/alcohol infractions, and a 29 percent increase in the number of other nonviolent misconducts that inmate committed. In contrast to the analysis of the prevalence of misconduct, inmates who experienced a sexual assault by a nonstranger as an adult committed more drug/alcohol infractions. Experiencing sexual assault by a nonstranger as an adult was associated with a 417 percent increase in the number of drug/alcohol infractions inmates committed. Similar to the analysis of the prevalence of misconduct, however, sexual assault by a nonstranger as an adult was not related to violent or other nonviolent misconduct. Also consistent with the analysis of the prevalence of misconduct,

[6] In hierarchical analyses of dichotomous outcomes, the meaning of the variance estimates is based on the validity of the assumption regarding the underlying probability distribution of the outcome variable. For the models presented here, the estimates of variance were derived under the assumption that the level-1 random effects conformed to a logistic distribution (Raudenbush & Bryk, 2002). Estimates of variance explained were computed using the formula offered by Hox (2010).

[7] The contribution of the exposure to violence measures to the variation within prisons explained was derived by comparing the estimates of the within prison variation explained without those measures included (results not shown) to the estimate of the within prison variation explained from the final models. Given that these estimates are pseudo-r squared values, readers should interpret them with some caution.

inmates who were physically assaulted by a nonstranger as an adult perpetrated a higher number of assaults than inmates who were not physically assaulted by a nonstranger as an adult. Experiencing a physical assault from a nonstranger as an adult was associated with a 27 percent increase in the number of assaults inmates committed. Experiencing a physical assault by a nonstranger as an adult was not associated with the number of drug/alcohol violations or other nonviolent misconducts committed, the latter of which was inconsistent with the results of the analysis of the prevalence of misconduct.

– table 6 about here –

Regarding the other predictors of misconduct, the results that differed from the analyses of the prevalence of misconduct included the nonsignificant effects of sex, incarcerated for a drug offense, incarcerated for a property offense, pre-arrest drug use, and conventional behaviors on assaults, the nonsignificant effects of sex and prior incarceration on drug/alcohol violations, and the significant inverse effects of incarcerated for a drug offense and incarcerated for a public order offense on drug/alcohol violations, as well as, the significant inverse effect of Hispanic on other nonviolent infractions and the nonsignificant effect of conventional behavior on other nonviolent misconduct. All of the other findings were identical to those derived from the analyses of the prevalence of misconduct.

The significant inmate-level predictors in the models accounted for 67 percent of the within prison variation in assaults, 85 percent of the within prison variation in drug/alcohol violations, and 70 percent of the within prison variation in other nonviolent misconduct. The combined contribution of the exposure to violence measures to the within prison variation explained was 10 percent (assaults), 7 percent (drug/alcohol violations), and 3 percent (other nonviolent misconduct), respectively.

The analyses of mental health problems (table 7) revealed that suffering abuse as a child was associated with higher odds of overnight hospitalization for mental health problems, and a higher number of manic, depression, and delusional symptoms. Inmates who were abused as a child had 75 percent higher odds of overnight hospitalization for mental health problems. Experiencing abuse as a child was also associated with a 28 percent increase in the number of manic symptoms, a 34 percent increase in the number of depression symptoms, and a 34 percent increase in the number of delusional symptoms. Experiencing a sexual assault by a nonstranger as an adult was also associated with higher odds of overnight hospitalization for mental health problems, and a higher number of manic, depression, and delusional symptoms. Suffering a sexual assault by a nonstranger as an adult was associated with a 117 percent increase in the odds of overnight hospitalization for mental health problems, a 21 percent increase in the number of manic symptoms, a 19 percent increase in the number of depression symptoms, and a 35 percent increase in the number of delusional symptoms inmates reported. Inmates who were physically assaulted by nonstrangers as adults experienced a greater number of manic and depression symptoms than inmates who were not assaulted by nonstrangers as adults, but the impact of physical assaults by nonstrangers as adults on delusional symptoms was nonsignificant. Physical assault by a nonstranger as an adult was also unrelated to the odds of overnight hospitalization for mental health problems. Inmates who were physically assaulted by nonstrangers as adults reported, on average, 10 percent more manic symptoms and nine percent more symptoms of depression.

– table 7 about here –

Regarding the control variables, only mental health problems in the year before arrest, time served, and hours spent at a facility work assignment were associated with the odds of an

overnight hospitalization for mental health problems; the former two of which were associated with higher odds, while the latter was associated with lower odds. Younger inmates, female inmates, inmates who used drugs before their arrest, and inmates with mental health problems in the year before their arrest experienced more symptoms of mental health problems relative to their counterparts. Incarceration for a drug offense and hours spent at a facility work assignment were inversely related to the number of symptoms of mental health problems inmates experienced. Black inmates and inmates of other race/ethnicity (besides white, black, or Hispanic) experienced a greater number of delusional symptoms than White inmates, while Hispanic inmates reported fewer manic and depression symptoms than white inmates. Aside from these effects, however, an inmate's race/ethnicity was not associated with the number of symptoms of mental health problems inmates experienced. Incarceration for a property offense was associated with fewer delusional symptoms relative to incarceration for a violent offense, but incarceration for a property offense had no effect on manic or depression symptoms. Inmates who were previously incarcerated and inmates who associated with an antisocial peer group reported more manic and depression symptoms than their counterparts, however, prior incarceration and antisocial peers were not associated with delusional symptoms. Incarceration for a public order offense, conventional behaviors, children, and time served had no effect on the number of symptoms of mental health problems inmates experienced.

Taken together, the significant inmate-level predictors in the models accounted for 28 percent of the within prison variation in overnight hospitals stays, 11 percent of the within prison variation in manic symptoms, 10 percent of the variation in depression symptoms, and 10 percent of the within prison variation in delusional symptoms. The combined contribution of the exposure to violence measures to the within prison variation explained was 2 percent

(hospitalization), 2 percent (manic symptoms), 2 percent (depression symptoms), and 1 percent (delusional symptoms), respectively.

MAIN AND MODERATING FACILITY EFFECTS ON MALADJUSTMENT

Most of the inmate-level relationships between the measures of exposure to violence and the indicators of maladjustment discussed above did not vary across facilities. However, the relationships between abuse as a child and the incidence of each type of misconduct, sexual assault by a nonstranger as an adult and the incidence of assaults and drug/alcohol violations, and physical assault by a nonstranger as an adult and the incidence of each type of misconduct varied across facilities, permitting an analysis of the moderating effects of the facility-level variables. Given these findings, facility-level effects on these level-1 intercepts and slopes were estimated. The results of these analyses are contained in table 8.

The intercepts as outcomes models revealed that facilities with proportionately more violent offenders had higher rates of all three types of misconduct. Facilities with higher rates of assaults (as reflected in the 2000 Census) had higher rates of self-reported assaults and other nonviolent infractions, but assault rates had no effect on the rate of drug/alcohol violations. In contrast, facilities with higher homicide rates had higher rates of drug/alcohol violations; a facility's homicide rate was not related to rates of assaults or other nonviolent misconduct. Rates of assaults and drug/alcohol violations were higher in maximum security facilities, but facility security level had no effect on the rate of other nonviolent misconduct. Crowding was not related to assault rates, but rates of drug/alcohol violations and other nonviolent misconduct were higher in crowded facilities. The significant main effects in the models accounted for 47 percent of the variation in assaults between prisons, 29 percent of the variation between prison in drug/alcohol violations, and 56 percent of the between facility variation in other nonviolent misconduct. The

combined contribution of the indirect exposure to violence measures to the between prison variation explained was 30 percent (assaults), 12 percent (drug/alcohol violations), and 38 percent (other nonviolent misconduct), respectively.

– table 8 about here –

Turning to the results from the slopes as outcomes models, table 8 shows that the positive relationship between abuse as a child and the incidence of assaults was stronger in facilities with higher homicide rates and in maximum security facilities. The positive relationship between abuse as a child and the incidence of other nonviolent misconduct was stronger in facilities that were more crowded. The positive relationships between sexual assault by a nonstranger as an adult and the incidence of assaults and drug/alcohol violations were amplified in facilities with higher levels of crowding, while the relationship between sexual assault by a nonstranger as an adult and the incidence of drug/alcohol violations was weaker in facilities with higher assault rates and facilities with higher homicide rates. The positive relationship between physical assault by a nonstranger as an adult and the incidence of assaults was stronger in facilities that had higher rates of assaults and homicides, as well as in facilities that were more crowded. The positive relationship between physical assault by a nonstranger as an adult and the incidence of drug/alcohol violations was also stronger in facilities with higher assault rates, and in maximum security facilities. Confinement in a maximum security facility also amplified the effect of physical assault by a nonstranger as an adult on the incidence of other nonviolent misconduct. None of the other conditioning effects were significant.

CONCLUSIONS

Researchers have uncovered a link between victimization and offending (e.g., Lauritsen & Laub, 2007; Sampson & Lauritsen, 1994; Shaffer & Ruback, 2002), underscoring that offenders are exposed to violence at higher rates than the general population. Yet, few studies have examined whether offenders who were exposed to violence prior to their incarceration are more likely to become maladjusted after their incarceration, or whether the relationship between exposure to violence and maladjustment is influenced by differences in the characteristics of the prison environments in which those inmates are confined. In this study, we used data from a nationally representative sample of inmates housed in state operated confinement facilities to examine the impact of exposure to various types of violence on inmate maladjustment. We also examined whether these relationships varied across facilities, and if so, whether the magnitude of the relationships was influenced by the characteristics of the facility environments in which these inmates were confined.

We uncovered that prison inmates are exposed to violence at a relatively high rate. For instance, over 70 percent of these inmates were exposed to some type of violence prior to their incarceration. Nearly 40 percent of the inmates were abused as a child, while almost half of these inmates were victimized as adults. Many of these inmates were also indirectly exposed to violence via their confinement in violent prison environments. More than half of the facilities included in this study housed primarily inmates incarcerated for a violent offense. Yearly assault rates were also high (e.g., 5 per 100 inmates) in many of the facilities examined in this study.

We also found evidence that exposure to multiple forms of violence prior to incarceration affected inmates' odds of experiencing maladjustment. These findings demonstrate that exposure to violence has long-term consequences for incarcerated offenders. Inmates who experienced

victimization prior to incarceration, in some instances many years prior to incarceration, were more likely to experience difficulty adjusting to prison. These results persisted even after controlling for other relevant influences of maladjustment. Thus, with regard to our first research question, we feel comfortable concluding that individuals who are exposed to violence before their incarceration are more likely to experience maladjustment in prison.

We also uncovered evidence that the effects of exposure to different forms of violence on maladjustment vary in magnitude. For example, the bivariate relationships between measures of victimization as a child were stronger than the relationships between measures of victimization as an adult. In general, the effects of victimization as a child were also greater in magnitude than the effects associated with simply experiencing any victimization. These findings are consistent with those derived from research on general population studies (e.g., Fagan, 2005; Moffitt, 1993; Thornberry et al., 2001). The magnitude of the effects of exposure to different types of violence on inmate adjustment also varied according to the identity of the perpetrator. Inmates who were victimized by a known assailant were more likely to experience maladjustment than inmates who were victimized by a stranger. Researchers have observed that victimization by individuals known to the victim may undermine individuals' sense of self-efficacy and self-image and reduce trust in others (e.g., MacMillan 2001). On the other hand, victimizations by strangers could be less traumatic, as individuals may view victimizations by strangers as random, fatalistic occurrences. In other words, victims of strangers may see themselves as being in the wrong place at the wrong time and simply a victim of circumstance, and therefore these events may not have as substantial mental or behavioral consequences as victimizations suffered at the hand of known assailants. Future research may wish to further explore this issue through, perhaps, a comparison of the perceptions of victims of nonstrangers to the perceptions of victims of strangers.

The findings from this study also showed that the effects of exposure to different types of violence vary according to the form of inmate maladjustment that is examined. Exposure to some types of violence (e.g. abuse as a child) was related to inmates' odds of misconduct and symptoms of mental health problems, while exposure to other types of violence (sexual victimization) contributed to a higher likelihood that inmates experienced symptoms of mental health problems. On the one hand, these findings suggest that, in general, exposure to violence influences both behavioral and psychological aspects of inmate adjustment. However, our findings also suggest that exposure to some forms of violence only manifest themselves behaviorally or mentally among confined populations. Thus, future studies of maladjustment should continue to examine different dimensions of this concept (see also Toch et al., 1989).

Based primarily on the results of the bivariate analyses of exposure to different forms of violence and the indicators of inmate maladjustment, we concluded that suffering abuse as a child, sexual assault by a nonstranger as an adult, and physical assault by a nonstranger as an adult were the strongest and most consistent predictors of maladjustment. After other potentially relevant predictors of maladjustment were controlled, experiencing abuse as a child significantly impacted all forms of maladjustment (behavioral and psychological); however, the findings pertaining to exposure to violence as an adult were mixed across models. Experiencing sexual assault by a nonstranger as an adult was not related to inmates' odds of perpetrating any type of misconduct, but experiencing sexual assault by a nonstranger did increase mental health problems among these inmates. Experiencing a physical assault by a nonstranger as an adult increased the odds inmates committed an assault or nonviolent rule infraction, but not a drug/alcohol violation. Experiencing a physical assault by a nonstranger as an adult was also associated with experiencing more symptoms of mania or depression, but not delusional

symptoms. These findings may suggest that exposure to certain forms of violence as an adult impact some forms of maladjustment differently among adult inmates. Exposure to violence as a child, on the other hand, appears to have ubiquitous effects on the measures of maladjustment used in this study. The earlier an individual is exposed to violence, the more difficult the adjustment process to prison seems to be. Regardless of the mixture of findings, however, the results do suggest that including abuse as a child, sexual assault by a nonstranger as an adult and physical assault by a nonstranger as an adult in models of maladjustment provide a comprehensive explanation of the influence of exposure to violence on maladjustment, at least relative to only including a single measure of exposure to violence.

The inmate-level analyses of the effects of exposure to violence revealed the majority of the relationships between the measures of exposure to violence and the indicators of maladjustment discussed above did not vary across facilities (research question #2). In fact, only the relationships between abuse as a child and the incidence of each type of misconduct, sexual assault by a nonstranger as an adult and the incidence of assaults and drug/alcohol violations, and physical assault by a nonstranger as an adult and the incidence of each type of misconduct varied across facilities. Recall that the incidence of misconduct reflects the number of times inmates engaged in these offenses, and it could be that the exposure to violence-incidence of misconduct relationship is weaker in some prisons because those facilities are better suited for (or more capable of) preventing inmates who perpetrate misconduct from becoming repeat offenders. On the one hand, these findings also suggest that the effects of exposure to violence are fairly robust, and are typically not influenced by the environment in which inmates are confined. Regardless, the relationships between nearly all of the measures of exposure to violence and the measures of the incidence of misconduct did vary across facilities, and so we examined whether

characteristics of facility environments moderated these relationships. We also examined the main effects of the facility-level variables on incidence rates of each type of misconduct (research question #3).

The facility-level analyses revealed that indicators of indirect exposure to violence impacted incidence rates of each type of misconduct. Facilities with higher densities of individuals incarcerated for violence had higher incidence rates of each type of misconduct, a finding consistent with Steiner and Wooldredge's (2008) results from their analyses of earlier waves of the survey data. Facilities with higher assault rates had higher rates of assaults and other nonviolent misconduct, while facilities with higher rates of homicide had higher rates of drug/alcohol violations. Thus, these main effects suggest that environmental or indirect exposure to violence induces higher rates of facility misconduct, including violence (assaults). Prisons with higher levels of violence or more violent populations contribute to higher odds that individuals will observe violence, which could function to model violent behaviors. If violence is modeled more frequently within a prison, more inmates may then imitate those behaviors, contributing to higher rates of assaults and other disruptive behaviors (see Buka et al., 2001; Eitle & Turner, 2002; Lynch, 2003; Spaccarelli et al., 1995 for related arguments pertaining to the general population). Also, more violent prisons may have less exposure to models or prosocial behavior, which could inhibit their opportunities to learn such behavior (Clements et al., 2008). Although it may seem tautological that assault rates impact assault rates, it is important to remember that the facility-level predictor variables were collected independently of the outcome measures and also preceded the outcome measure in time. Our findings suggest, therefore, that facility violence begets future facility violence, or at least that rates of past

violence proxy deficits in prison management, an inmate culture tolerant of violence, and so forth.

The analysis of the moderating effects of facility characteristics on the inmate-level relationships between the indicators of exposure to violence and the incidence of misconduct (research question #4) revealed that the relationships between some measures of exposure to violence and the incidence of misconduct were impacted by the facility characteristics examined in this study. We found that the relationship between experiencing child abuse and the incidence of assaults was stronger in facilities with higher homicide rates and in maximum security facilities. The child abuse-other nonviolent misconduct relationship was stronger in more crowded facilities. The positive relationships between sexual assault by a nonstranger as an adult and the incidence of assaults and drug/alcohol violations were stronger in facilities with higher levels of crowding, but the relationship between sexual assault by a nonstranger as an adult and the incidence of drug/alcohol violations was weaker in facilities with higher assault rates and facilities with higher homicide rates. The physical assault by a nonstranger as an adult-incidence of assaults relationship was amplified in more violent facilities (i.e., facilities that had higher rates of assaults and homicides), as well as in facilities that were more crowded. The relationship between physical assault by a nonstranger as an adult and the incidence of drug/alcohol violations was also stronger in facilities with higher assault rates, and in maximum security facilities. Confinement in a maximum security facility also amplified the effect of physical assault by a nonstranger as an adult and the incidence of other nonviolent misconduct. Although the moderating effects described here offer some important avenues for future research such as the moderating effects of facility violence and facility crowding, the inconsistencies of the findings across the analyses suggest caution is warranted before placing too much faith in these

findings until they are substantiated by future studies. It is also worth reiterating that the majority of the relationships between the measures of exposure to violence and the indicators of maladjustment discussed above did not vary across facilities, and so it could very well be that researchers will simply want to focus on the main effects of facility characteristics, as opposed to moderating effects.

The findings pertaining to the control variables observed here were generally consistent with the extant research on maladjustment. At the inmate-level, age and a history of antisocial behavior were related to all forms of maladjustment (see also Arbach-Lucioni et al., 2012; Berg & DeLisi, 2006; Berk et al., 2006; Cunningham & Sorensen, 2006; Gaes et al., 2002; Griffin & Hepburn, 2006; Steiner & Wooldredge, 2008; Steiner & Wooldredge, 2009a; Steiner & Wooldredge, 2009b). Consistent with our results, research has shown race/ethnicity, committing offense type, and conventional behaviors have mixed effects across studies (e.g., Camp et al., 2003; Morris et al., 2010; Sorensen et al., 2011; Sorensen & Cunningham, 2010; Huebner, 2003; Steiner & Wooldredge, 2008; Wolff et al., 2007). Sex was not related to misconduct, but female inmates were more likely to experience a greater number of mental health problems than male inmates. Researchers have observed a greater prevalence of mental illness and more pronounced effects of mental illness among female offenders compared to males (see, e.g., James & Glaze, 2006; Lord, 2008; Morash & Schram, 2002). Greater involvement (e.g., more hours) in a facility work assignment contributed to better adjustment among inmates. Other studies have revealed a similar effect of involvement in prison jobs (Huebner, 2003; Steiner & Wooldredge, 2008; 2009a; 2009b). Finally, time served was related to misconduct, but not to mental health problems. This may be due in part to the differences in the measurement of the outcomes. The misconduct outcomes measured the prevalence of misconduct since admission to prison, while

the mental health outcomes asked inmates about experiencing various symptoms in the past year. It is logical to expect that inmates who have served longer periods of confinement have a greater probability of committing an infraction, as well as having their misdeeds detected.

At the facility-level, the main effects of maximum security on rates of assaults and drug/alcohol offenses observed here were consistent with prior research (Griffin & Hepburn, 2008; Huebner, 2003; Steiner & Wooldredge, 2008; Steiner & Wooldredge, 2009a). Facility crowding was positively associated with rates of drug/alcohol violations and other nonviolent rule infractions, which is consistent with some research (e.g., Steiner & Wooldredge, 2009a; Wooldredge & Steiner, 2009).

In addition to the potential limitation concerning the timing of the misconduct measures, it is also worth reminding readers that all of the measures that were used in this study were based on self-reports from inmates' (survey data) or correctional administrators (census data). The concerns related to the reliability and validity of self-report data are well known, however, they may be exaggerated among samples of offenders; incarcerated offenders may either underreport or over report victimization (see Widom, 1989b). Relatedly, the census data collected from facility administrators may be subject to related concerns stemming from differences in operational definitions of measures such as assaults and capacity across jurisdictions, not to mention variation in reporting and recording requirements. Self-report measures of maladjustment have been determined to be valid indicators of behavior (Van Voorhis, 1994); however, it is important to keep the possible limitations related to the data sources in mind when interpreting the study findings. Future studies may wish to examine the impact of exposure to violence on self-reported and official indicators of maladjustment. Researchers may also want to consider other methods of collecting data pertaining to facility environments (e.g., systematic

social observation, more directed survey formats). Researchers may also want to collect data on prison environments that captures environmental conditions at the same time data are collected from inmates. An advantage of merging the two datasets (as we did here) is that the measures are independent of one another, and the measures created from the census data precede the measures created from the survey data in time (e.g., maladjustment). However, a potential drawback to this strategy is that it is based on the assumption that the characteristics of facility environments remain stable. Although some prisons characteristics (e.g., security level) remain relatively stable, others (e.g., homicide rates) may fluctuate from year to year.

An additional limitation pertains to the measures of mental health problems; these measures only capture symptoms experienced in the past year. On the one hand, limiting responses to symptoms experienced in the past year permits inferences that inmates experienced these symptoms within prison. On the other hand, inmates were not asked similar questions about their experiences prior to imprisonment. Thus, we were unable to discern whether the symptoms inmates experienced in the past year were unique to that time period (and environment), or simply part of a pattern of symptoms of mental illness that the inmates had been experiencing for a longer period of time. To adjust for this issue, in part, we included a measure of indicators of mental health problems prior to imprisonment, but this measure did differ in some respects from the outcome measures, which leaves open the possibility that some inmates had experienced symptoms of mental illness for longer periods of time than the year prior to the survey. Researchers may want to examine the impact of exposure to violence on symptoms of mental health problems after incarceration, while controlling for symptoms experienced prior to imprisonment. Researchers may also want to examine whether exposure to violence prior to incarceration is related to PTSD symptoms among inmates. The survey data used here did not

include indicators of symptoms of PTSD, but researchers have observed that exposure to violence in general may induce PTSD symptoms among general population samples (see, e.g., Clements et al., 2008; Fowler et al., 2009; Listwan et al., 2010; Luthra et al., 2009).

The potential limitations aside, the findings from this study of inmates confined in state prisons have important implications for policy and future research. The findings suggest that exposure to violence is an important influence on inmate adjustment to prison. Prior victimization may be a factor that correctional officials may wish to consider when making classification and housing decisions. The analysis of mental health outcomes confirmed that victimization has damaging mental health consequences for inmates. Thus, past victimization should be included in needs assessments that aid in identifying appropriate treatments or interventions for inmates. The consistency of the findings pertaining to exposure to violence suggest that indicators of child abuse and experiencing assault as an adult should be included in future studies of misconduct, while exposure to sexual abuse as an adult, along with experiencing child abuse and/or an assault as an adult should be included in models of mental health problems.

The findings from this study would support a learning theory explanation of the effect of victimization on misconduct. Violent or sexual victimization may model violent behaviors and defiance of authority, and it appears that inmates who have been exposed to violence prior to incarceration have higher odds of engaging in assaults in prison and have difficulty following instructions from corrections officials (evidence by the effect of exposure to violence on nonviolent misconduct), possibly because they have learned norms and values endorsing this behavior through their exposure to violence. The findings from this study also support models of trauma exposure or post-traumatic stress disorder (Ardino, 2012; Kilpatrick et al., 2003). Inmates

who were exposed to violence prior to their incarceration were more likely to form mental health problems, act aggressively, and use illegal substances within prison.

The findings pertaining to the link between exposure to violence prior to incarceration and maladjustment in prison offer less support for lifestyle or routine activities theories. Lifestyle and routine activities theories posit that the relationship between exposure to violence and offending is explained by the overlap in the characteristics, lifestyles, and routines of offenders and victims (Cohen & Felson, 1979; Miethe & Meier, 1994). Prison inmates are "knifed off" from their family, associates, and neighborhood of residence during their term of imprisonment, which renders such an explanation of the exposure to violence prior to incarceration-maladjustment relationship less plausible. Similarly, our findings may not offer much support for strain theories as an explanation of the exposure to violence pre-incarceration and inmate maladjustment relationship. In order for strain to explain this relationship the negative emotions resulting from the strain caused by exposure to violence would have to persist during the time between when an inmate was exposed to violence and the time during their period of incarceration when they experienced maladjustment. Since the most robust findings observed here pertain to experiencing child abuse, such a scenario seems unlikely. Still, future studies might continue to explore the underlying causal mechanisms linking exposure to violence to maladjustment to prison.

Finally, future studies might also continue to examine the relevance of indirect exposure to violence. Indirect exposure could occur as a result of confinement in "violent" environments, such as were examined here. Indirect exposure could also occur at the inmate-level. For instance, inmates may witness violence perpetrated by other inmates, and witnessing such event could impact their well-being. Despite the inconsistent moderating effects, the consistency of the main effects observed here, along with the evidence concerning indirect exposure derived from studies

conducted on general population studies (e.g., Buka et al, 2001; Eitle & Turner, 2002; Lynch, 2003); suggest this may still be an important avenue for future inquiry.

All told, the findings from this study suggest that exposure to violence does have implications for inmate adjustment, and may be an important factor to include alongside the standard set of predictors of inmate adjustment to prison. Future research should continue to explore the impact of exposure to violence on inmate adjustment and consider other aspects of exposure to violence. The potential exposure to violence-maladjustment relationship has been understudied, and it is through continued study of the effects of exposure to different forms of violence that greater light can be shed on inmates' adjustment experience.

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Table 1: Description of Measures

	Mean	SD
Outcome variables		
Maladjustment		
Prevalence of assault	.21	(.41)
Prevalence of drug/alcohol	.08	(.27)
Prevalence of other nonviolent	.48	(.50)
Incidence of assault	.70	(2.22)
Incidence of drug/alcohol	.16	(.79)
Incidence of other nonviolent	2.29	(5.91)
Mental health problems		
Manic symptoms	2.88	(2.69)
Depression symptoms	3.27	(2.93)
Delusional symptoms	.78	(1.24)
Overnight hospitalization for mental health problems	.03	(.18)
Inmate-level predictor variables		
Exposure to (types of) violence		
Any victimization	.71	(.46)
Any victimization more than once	.40	(.49)
Any victimization by nonstranger	.42	(.49)
Any victimization by stranger	.30	(.46)
Sexual victimization	.09	(.29)
Sexual victimization more than once	.06	(.24)
Sexual victimization by nonstranger	.08	(.26)
Sexual victimization by stranger	.02	(.12)
Physical victimization	.70	(.46)
Physical victimization more than once	.38	(.49)
Physical victimization by nonstranger	.41	(.49)
Physical victimization by stranger	.29	(.45)
Physical victimization w/weapon	.34	(.47)
Physical victimization w/out weapon	.36	(.48)
Physical victimization w/ injury	.48	(.50)
Abuse as child	.39	(.49)
Abuse by nonstranger as child	.33	(.47)
Abuse by relative as child	.17	(.37)
Abuse by stranger as child	.06	(.25)
Sexual abuse as child	.07	(.26)
Sexual abuse by nonstranger as child	.06	(.25)
Sexual abuse by relative as child	.03	(.18)
Sexual abuse by stranger as child	.01	(.10)
Physical abuse as child	.37	(.48)
Physical abuse by nonstranger as child	.31	(.46)
Physical abuse by relative as child	.15	(.36)
Physical abuse by stranger as child	.06	(.23)
Physical abuse w/weapon as child	.17	(.38)
Physical abuse w/out weapon as child	.19	(.40)
Physical abuse w/injury as child	.33	(.47)
Assault as adult	.49	(.50)
Assault by nonstranger as adult	.23	(.42)
Assault by intimate partner as adult	.06	(.23)
Assault by stranger as adult	.26	(.44)
Sexual assault as adult	.03	(.17)
Sexual assault by nonstranger as adult	.02	(.14)
Sexual assault by intimate partner as adult	.01	(.09)

Table 1: Description of Measures (cont.)

	Mean	SD
Exposure to (types of) violence (cont.)		
Sexual assault by stranger as adult	.01	(.09)
Physical assault as adult	.48	(.50)
Physical assault by nonstranger as adult	.22	(.42)
Physical assault by intimate partner as adult	.05	(.23)
Physical assault by stranger as adult	.26	(.44)
Physical assault w/weapon as adult	.27	(.44)
Physical assault w/out weapon as adult	.21	(.41)
Assault w/injury as adult	.29	(.46)
Control variables		
Age	35.70	(10.61)
Female	.07	(.25)
White[2]	.36	(.48)
Black	.40	(.49)
Hispanic	.18	(.39)
Other race/ethnicity	.06	(.24)
Incarcerated for violent offense[2]	.53	(.50)
Incarcerated for drug offense	.18	(.38)
Incarcerated for property offense	.20	(.40)
Incarcerated for public order offense	.09	(.28)
Prior incarceration	.58	(.49)
Used drugs in month before arrest	.56	(.50)
Associated with antisocial peer group before arrest	.58	(.49)
Conventional behaviors	1.21	(.81)
Child(ren)	.66	(.47)
Mental health problems in year before arrest	.13	(.33)
Natural log time served (in months)	3.30	(1.42)
Natural log hours at work assignment (past week)	1.80	(1.59)
N_1 =	12,044	
Facility-level predictor variables		
Exposure to(types of) violence		
Proportion inmates incarcerated for violent offense	.52	(.19)
Natural log assault rate	1.31	(1.31)
Natural log homicide rate	.004	(.02)
Control variables		
Crowding	1.29	(.47)
Maximum security facility	.41	(.49)
N_2 =	242	

Notes: All measures dummy coded except mental health symptoms, age, conventional behaviors, time served, hours at work assignment, proportion inmates incarcerated for violent offense, assault rate, homicide rate, and crowding.
[1] Descriptive statistics based on N =12,023.[2] Reference category.

Table 2: Bivariate Relationships between Exposure to Violence and Prevalence of Misconduct

	Assaults		Drug/alcohol		Other nonviolent	
	r	**exp(*b*)**	***r***	**exp(*b*)**	***r***	**exp(*b*)**
Exposure to (types of) violence						
Any victimization	.14	2.16*	.09	2.13*	.16	1.81*
Any victimization more than once	.14	1.82*	.09	1.86*	.14	1.62*
Any victimization by nonstranger	.12	1.72*	.08	1.70*	.13	1.60*
Any victimization by stranger	.01	1.06	.01	1.00	.02	1.06
Sexual victimization	.03	1.29*	.01	1.30*	.05	1.46*
Sexual victimization more than once	.02	1.24*	.002	1.22	.04	1.50*
Sexual victimization by nonstranger	.03	1.28*	.01	1.28	.05	1.39*
Sexual victimization by stranger	.01	1.25	.000	1.22	.02	1.59*
Physical victimization	.15	2.18*	.09	2.11*	.16	1.80*
Physical victimization more than once	.14	1.83*	.10	1.87*	.13	1.61*
Physical victimization by nonstranger	.12	1.71*	.08	1.69*	.13	1.60*
Physical victimization by stranger	.01	1.05	.01	1.00	.01	1.04
Physical victimization w/weapon	.12	1.67*	.08	1.55*	.10	1.40*
Physical victimization w/out weapon	.02	1.10	.01	1.11	.05	1.22*
Physical victimization w/ injury	.14	1.82*	.09	1.82*	.13	1.58*
Exposure to (types of) violence as a child						
Abuse as child	.16	1.97*	.12	2.05*	.16	1.73*
Abuse by nonstranger as child	.14	1.78*	.10	1.83*	.15	1.69*
Abuse by relative as child	.07	1.41*	.05	1.49*	.09	1.47*
Abuse by stranger as child	.07	1.70*	.05	1.63*	.04	1.34*
Sexual abuse as child	.04	1.36*	.02	1.37*	.05	1.44*
Sexual abuse by nonstranger as child	.03	1.31*	.01	1.31	.05	1.39*
Sexual abuse by relative as child	.02	1.34*	.01	1.24	.04	1.45*
Sexual abuse by stranger as child	.02	1.57	.01	1.66	.02	1.64
Physical abuse as child	.17	2.02*	.12	2.07*	.16	1.76*
Physical abuse by nonstranger as child	.14	1.81*	.10	1.84*	.15	1.73*
Physical abuse by relative as child	.07	1.41*	.05	1.54*	.09	1.50*
Physical abuse by stranger as child	.07	1.74*	.05	1.66*	.03	1.31*
Physical abuse w/weapon as child	.15	2.04*	.10	1.91*	.11	1.60*
Physical abuse w/out weapon as child	.07	1.37*	.05	1.44*	.10	1.51*
Physical abuse w/injury as child	.17	2.00*	.12	2.05*	.16	1.76*
Exposure to (types of) violence as an adult						
Assault as adult	.05	1.26*	.02	1.09	.05	1.18*
Assault by nonstranger as adult	.07	1.45*	.03	1.32*	.05	1.28*
Assault by intimate partner as adult	-.02	1.02	-.02	.97	-.01	1.06
Assault by stranger as adult	-.01	.95	-.01	.85	.01	1.00
Sexual assault as adult	-.005	1.07	-.01	1.06	.02	1.39*
Sexual assault by nonstranger as adult	.001	1.19	-.004	1.27	.02	1.38*
Sexual assault by intimate partner as adult	-.01	1.07	-.002	1.25	.004	1.22
Sexual assault by stranger as adult	-.01	.78	-.01	.59	.01	1.32
Physical assault as adult	.05	1.26*	.02	1.07	.05	1.17*
Physical assault by nonstranger as adult	.06	1.44*	.03	1.30*	.05	1.26*
Physical assault by intimate partner as adult	-.02	.99	-.02	.96	-.01	1.05*
Physical assault by stranger as adult	-.01	.96	-.01	.85	.01	.99
Physical assault w/weapon as adult	.08	1.40*	.04	1.25*	.07	1.27*
Physical assault w/out weapon as adult	-.02	.93	-.03	.83*	-.02	.95
Assault w/injury as adult	.06	1.38*	.03	1.21*	.05	1.20*

Notes: Pearson's *r* values and odds ratios generated from hierarchical Bernoulli models reported; Italicized coefficients indicate relationship varies across facilities ($p \leq .05$); $N = 12{,}044$; *$p \leq .01$

Table 3: Bivariate Relationships between Exposure to Violence and Incidence of Misconduct

	Assaults		Drug/alcohol		Other nonviolent	
	r	**exp(*b*)**	***r***	**exp(*b*)**	***r***	**exp(*b*)**
Exposure to types of violence						
Any victimization	.10	2.02*	.06	1.88*	.12	1.99*
Any victimization more than once	.12	1.82*	.07	1.86*	.12	1.69*
Any victimization by nonstranger	.10	1.65*	.06	1.63*	.11	*1.56**
Any victimization by stranger	.001	*.99*	.001	.97	.007	1.03
Sexual victimization	.03	1.34*	.001	1.12	.04	1.32*
Sexual victimization more than once	.02	1.29	.000	1.13	.03	1.33*
Sexual victimization by nonstranger	.03	1.37*	.004	1.17	.04	1.33*
Sexual victimization by stranger	.005	1.08	-.005	1.02	.007	1.16
Physical victimization	.10	2.04*	.06	1.88*	.12	1.96*
Physical victimization more than once	.12	1.85*	.07	1.87*	.13	1.70*
Physical victimization by nonstranger	.10	1.66*	.06	1.59*	.11	1.56*
Physical victimization by stranger	-.001	*.98*	.003	.97	.005	1.02
Physical victimization w/weapon	.08	1.53*	.08	*1.95**	.07	*1.36**
Physical victimization w/out weapon	.02	1.08	-.02	.80*	.04	1.98*
Physical victimization w/ injury	.11	1.77*	.07	*1.98**	.10	*1.55**
Exposure to types of violence as a child						
Abuse as child	.14	2.00*	.09	2.18*	.15	*1.88**
Abuse by nonstranger as child	.12	1.82*	.08	1.86*	.14	1.75*
Abuse by relative as child	.07	*1.50**	.03	1.31*	.10	*1.61**
Abuse by stranger as child	.05	1.51*	.05	1.79*	.04	1.36*
Sexual abuse as child	.04	1.42*	.009	1.26	.04	1.37*
Sexual abuse by nonstranger as child	.04	1.42*	.009	1.23	.04	1.37*
Sexual abuse by relative as child	.03	1.49*	.004	1.15	.03	1.34*
Sexual abuse by stranger as child	.01	1.29	.003	1.42	.006	1.24
Physical abuse as child	.14	2.07*	.10	2.18*	.15	*1.91**
Physical abuse by nonstranger as child	.12	1.86*	.08	1.84*	.14	*1.78**
Physical abuse by relative as child	.07	*1.53**	.03	1.29*	.10	*1.66**
Physical abuse by stranger as child	.05	1.53*	.04	1.82*	.04	1.38*
Physical abuse w/weapon as child	.11	1.83*	.11	2.25*	.10	1.66*
Physical abuse w/out weapon as child	.07	1.46*	.01	1.06	.09	1.49*
Physical abuse w/injury as child	.14	2.03*	.10	2.27*	.14	*1.80**
Exposure to types of violence as an adult						
Assault as adult	.03	*1.14*	.01	*1.09*	.02	*1.05*
Assault by nonstranger as adult	.04	1.32*	.03	1.41*	.03	*1.14*
Assault by intimate partner as adult	-.004	1.07	-.007	1.18	.001	1.06
Assault by stranger as adult	-.01	*.90*	-.01	.81	-.007	.94
Sexual assault as adult	.001	*1.06*	-.01	1.04	.01	1.12
Sexual assault by nonstranger as adult	.003	1.16	-.003	1.32	.01	1.12
Sexual assault by intimate partner as adult	-.005	.89	.005	1.86	-.001	.91
Sexual assault by stranger as adult	-.005	.81	-.04	.41	.001	1.01
Physical assault as adult	.02	*1.13*	.01	*1.09*	.01	*1.03*
Physical assault by nonstranger as adult	.04	1.32*	.03	1.38*	.02	*1.12*
Physical assault by intimate partner as adult	-.003	1.07	-.01	1.05	-.001	1.06
Physical assault by stranger as adult	-.01	.89	.01	.81	-.007	.94
Physical assault w/weapon as adult	.05	1.29*	.04	*1.47**	.03	1.16*
Physical assault w/out weapon as adult	-.02	.86	-.06	.68*	-.02	.89
Assault w/injury as adult	.04	1.29*	.03	*1.40**	.02	*1.11*

Notes: Pearson's *r* values and event rate ratios generated from hierarchical Poisson models reported; Italicized coefficients indicate relationship varies across facilities ($p \leq .05$); $N = 12{,}044$; *$p \leq .01$

Table 4: Bivariate Relationships between Exposure to Violence and Mental Health Problems

	Hospitalization		Manic		Depression		Delusional	
	r	exp(*b*)	*r*	exp(*b*)	*r*	exp(*b*)	*r*	exp(*b*)
Exposure to types of violence								
Any victimization	.05	2.02*	.23	*1.62**	.26	*1.68**	.15	1.73*
Any victimization more than once	.08	2.53*	.22	1.46*	.26	1.52*	.16	1.57*
Any victimization by nonstranger	.08	2.48*	.23	1.47*	.27	1.54*	.16	1.55*
Any victimization by stranger	-.03	.73	.01	1.01	-.01	*1.00*	-.003	*1.01*
Sexual victimization	.10	3.72*	.15	1.39*	.20	1.54*	.16	1.79*
Sexual victimization more than once	.09	3.91*	.12	1.37*	.17	1.51*	.14	1.76*
Sexual victimization by nonstranger	.09	3.43*	.14	1.39*	.19	1.52*	.15	1.76*
Sexual victimization by stranger	.04	2.90*	.04	1.22*	.07	1.37*	.06	1.48*
Physical victimization	.04	1.90*	.23	*1.62**	.26	*1.67**	.15	1.72*
Physical victimization more than once	.07	2.29*	.21	1.44*	.25	1.50*	.15	1.51*
Physical victimization by nonstranger	.07	2.28*	.23	1.45*	.26	1.52*	.15	1.52*
Physical victimization by stranger	-.04	.65*	-.01	1.00	-.02	*.97*	-.01	*.99*
Physical victimization w/weapon	-.02	.85	.11	*1.25**	.08	*1.17**	.04	1.16*
Physical victimization w/out weapon	.06	1.91*	.11	*1.19**	.17	1.29*	.10	1.32*
Physical victimization w/ injury	.05	1.86*	.21	*1.44**	.24	*1.49**	.14	*1.50**
Exposure to types of violence as a child								
Abuse as child	.09	2.61*	.23	*1.49**	.26	1.55*	.16	1.57*
Abuse by nonstranger as child	.09	2.62*	.22	1.46*	.26	1.53*	.16	1.57*
Abuse by relative as child	.10	2.97*	.18	1.43*	.24	1.56*	.15	1.60*
Abuse by stranger as child	.01	1.29	.05	1.20*	.05	1.20*	.02	1.15*
Sexual abuse as child	.10	3.61*	.13	1.39*	.19	1.55*	.15	1.78*
Sexual abuse by nonstranger as child	.09	3.38*	.13	1.38*	.18	1.53*	.14	1.76*
Sexual abuse by relative as child	.07	3.48*	.11	1.40*	.15	1.54*	.11	1.77*
Sexual abuse by stranger as child	.05	3.60*	.04	1.32*	.07	1.50*	.05	1.57*
Physical abuse as child	.08	2.40*	.22	1.48*	.25	1.52*	.14	1.52*
Physical abuse by nonstranger as child	.08	2.45*	.21	1.45*	.25	1.51*	.14	1.53*
Physical abuse by relative as child	.10	3.03*	.17	1.42*	.23	1.56*	.13	1.57*
Physical abuse by stranger as child	-.01	1.03	.04	1.18*	.03	1.15*	.01	1.08
Physical abuse w/weapon as child	-.01	1.02	.11	1.29*	.09	1.23*	.04	1.18*
Physical abuse w/out weapon as child	.10	2.84*	.16	1.37*	.22	1.49*	.13	1.53*
Physical abuse w/injury as child	.06	2.06*	.20	*1.44**	.22	*1.47**	.12	1.44*
Exposure to types of violence as an adult								
Assault as adult	-.01	.97	.10	1.17*	.10	1.16*	.07	*1.18**
Assault by nonstranger as adult	.02	1.42*	.15	1.27*	.15	1.28*	.09	1.26*
Assault by intimate partner as adult	.03	1.79*	.11	1.29*	.13	1.33*	.10	1.47*
Assault by stranger as adult	-.03	.67*	-.02	.98	-.03	*.96*	-.01	*1.00*
Sexual assault as adult	.05	2.64*	.09	1.34*	.12	1.40*	.10	1.66*
Sexual assault by nonstranger as adult	.04	2.87*	.09	1.39*	.11	1.42*	.09	1.77*
Sexual assault by intimate partner as adult	.01	1.34	.06	1.31*	.07	1.36*	.05	1.44*
Sexual assault by stranger as adult	.02	1.62	.03	1.12*	.04	1.22*	.04	1.41*
Physical assault as adult	-.01	.89	.10	1.16*	.09	*1.14**	.06	*1.16**
Physical assault by nonstranger as adult	.02	1.28	.14	1.26*	.14	1.26*	.08	1.23*
Physical assault by intimate partner as adult	.03	1.78*	.10	1.27*	.12	1.31*	.10	1.46*
Physical assault by stranger as adult	-.03	.65*	-.02	.97	-.03	*.95*	-.01	*.99*
Physical assault w/weapon as adult	-.02	.84	.09	*1.20**	.07	*1.15**	.03	1.13*
Physical assault w/out weapon as adult	.01	1.02	.02	*1.00*	.04	1.03	.03	1.07
Assault w/injury as adult	.01	1.19	.13	1.23*	.14	*1.24**	.08	1.26*

Notes: Pearson's *r* values, odds ratios generated from hierarchical Bernoulli models for analysis of overnight hospitalization, event rate ratios generated from hierarchical Poisson models for analysis of symptoms of mental health problems reported; Italicized coefficients indicate relationship varies across facilities ($p \leq .05$); $N = 12{,}044$; $^{*}p \leq .01$

Table 5: Inmate-level effects on prevalence of misconduct

	Assaults	Drug/alcohol	Other nonviolent
Intercept	-1.77*	-3.49*	-.10
	(.06)	(.12)	(.09)
Abuse as child	.39*	.36*	.28*
	(.06)	(.09)	(.05)
Sexual assault by nonstranger as adult	-.01	.02	.15
	(.02)	(.27)	(.13)
Physical assault by nonstranger as adult	.33*	.11	.14*
	(.06)	(.10)	(.06)
Age	-.05*	-.04*	-.04*
	(.003)	(.01)	(.003)
Female	-.47*	-1.21*	-.15
	(.14)	(.22)	(.12)
Black	.26*	-.17	.08
	(.07)	(.10)	(.06)
Hispanic	.09	-.14	-.12
	(.09)	(.14)	(.07)
Other race/ethnicity	-.04	-.01	.15
	(.12)	(.18)	(.10)
Incarcerated for drug offense	-.22*	-.25	-.17*
	(.09)	(.14)	(.07)
Incarcerated for property offense	-.20*	-.24	-.02
	(.08)	(.12)	(.06)
Incarcerated for public order offense	-.13	-.12	-.06
	(.12)	(.20)	(.09)
Prior incarceration	.27*	.40*	.24*
	(.06)	(.09)	(.05)
Used drugs in month before arrest	.16*	.93*	.17*
	(.07)	(.09)	(.05)
Associated with antisocial peer group before arrest	.30*	.35*	.40*
	(.06)	(.10)	(.05)
Conventional behaviors	-.11*	-.002	-.08*
	(.04)	(.05)	(.03)
Child(ren)	-.17*	.11	-.15*
	(.06)	(.09)	(.05)
Mental health problems in year before arrest	.31*	.03	.20*
	(.08)	(.13)	(.07)
Natural log time served (in months)	*.73**	1.12*	*.71**
	(.03)	(.06)	*(.03)*
Natural log hours at work assignment (past week)	-.14*	-.09*	-.06*
	(.02)	(.03)	(.02)
Proportion variation within prison explained	.33	.47	.31
Proportion of variation within prisons	.88	.84	.88
N=	12,044		

Notes: Maximum likelihood coefficients reported (with standard errors in parentheses); Italicized coefficients indicate relationship varies across facilities ($p \leq .05$).
*$p \leq .01$

Table 6: Inmate-level effects on incidence of misconduct

	Assaults	Drug/alcohol	Other nonviolent
Intercept	-1.08	-1.42	.31
	(.06)	(.18)	(.08)
Abuse as child	*.32*[*]	*.26*[*]	*.26*[*]
	(.05)	*(.10)*	*(.05)*
Sexual assault by nonstranger as adult	*.003*	*1.64*[*]	.03
	(.13)	*(.23)*	(.09)
Physical assault by nonstranger as adult	*.24*[*]	*.21*	*.10*
	(.05)	*(.11)*	*(.05)*
Age	*-.05*[*]	*.01*	*-.05*[*]
	(.003)	*(.01)*	*(.003)*
Female	-.05	.09	.27
	(.12)	(1.08)	(.12)
Black	*.21*[*]	*-.06*	*.01*
	(.05)	*(.11)*	*(.05)*
Hispanic	-.13	-.03	-.24[*]
	(.05)	(.05)	(.05)
Other race/ethnicity	.10	-.01	-.03
	(.07)	(.06)	(.07)
Incarcerated for drug offense	-.13	-.18[*]	-.21[*]
	(.06)	(.05)	(.06)
Incarcerated for property offense	-.02	-.03	.004
	(.05)	(.04)	(.06)
Incarcerated for public order offense	-.02	-.55[*]	*.08*
	(.05)	(.08)	*(.07)*
Prior incarceration	*.24*[*]	*.13*	.17[*]
	(.05)	*(.11)*	(.03)
Used drugs in month before arrest	*.12*	*.62*[*]	*.17*[*]
	(.06)	*(.12)*	*(.05)*
Associated with antisocial peer group before arrest	.31[*]	*.42*[*]	*.31*[*]
	(.06)	*(.12)*	*(.05)*
Conventional behaviors	*-.01*	*-.13*	*-.04*
	(.03)	*(.06)*	*(.03)*
Child(ren)	*-.17*[*]	*-.01*	*-.14*[*]
	(.06)	*(.09)*	*(.05)*
Mental health problems in year before arrest	.30[*]	*.24*	*.19*[*]
	(.04)	*(.13)*	*(.06)*
Natural log time served (in months)	*.93*[*]	*.77*[*]	*.83*[*]
	(.03)	*(.06)*	*(.03)*
Natural log hours at work assignment (past week)	*-.14*[*]	*-.13*[*]	*-.08*[*]
	(.02)	*(.04)*	*(.01)*
Proportion variation within prisons explained	.67	.85	.70
Proportion variation within prisons	.91	.71	.96
N=	12,044		

Notes: [1]Maximum likelihood coefficients reported (with standard errors in parentheses); Italicized coefficients indicate relationship varies across facilities ($p \leq .05$).

[*] $p \leq .01$

Table 7: Inmate-level effects on mental health problems

	Hospitalization	Manic	Depression	Delusional
Intercept	-4.12*	1.05*	1.19*	-.30*
	(.10)	(.02)	(.02)	(.03)
Abuse as a child	.56*	.24*	.29*	.29*
	(.13)	(.02)	(.02)	(.03)
Sexual assault by nonstranger as an adult	.77*	.19*	.18*	.30*
	(.26)	(.04)	(.04)	(.06)
Physical assault by nonstranger as an adult	.01	.10*	.09*	.07
	(.13)	(.02)	(.02)	(.03)
Age	-.01	-.01*	-.01*	-.01*
	(.01)	(.001)	(.001)	(.001)
Female	-.11	.27*	.29*	.39*
	(.20)	(.03)	(.03)	(.05)
Black	-.14	.04	-.01	.21*
	(.15)	(.02)	(.02)	(.04)
Hispanic	-.18	-.12*	-.11*	.10
	(.20)	(.03)	(.03)	(.05)
Other race/ethnicity	-.19	.04	.03	.20*
	(.26)	(.04)	(.03)	(.06)
Incarcerated for drug offense	-.52	-.09*	-.13*	-.23*
	(.22)	(.03)	(.02)	(.04)
Incarcerated for property offense	-.37	-.002	-.04	-.18*
	(.17)	(.02)	(.02)	(.04)
Incarcerated for public order offense	-.29	.03	-.05	-.13
	(.26)	(.03)	(.03)	(.06)
Prior incarceration	-.11	.09*	.07*	.07
	(.13)	(.02)	(.02)	(.03)
Used drugs in month before arrest	.23	.18*	.15*	.17*
	(.13)	(.02)	(.02)	(.03)
Associated with antisocial peer group before arrest	.25	.17*	.15*	.07
	(.14)	(.02)	(.02)	(.04)
Conventional behaviors	-.16	.002	-.01	-.02
	(.08)	(.01)	(.01)	(.02)
Child(ren)	.0001	.01	.02	.03
	(.13)	(.02)	(.02)	(.03)
Mental health problems in year before arrest	2.13*	.38*	.44*	.81*
	(.13)	(.02)	(.02)	(.03)
Natural log time served (in months)	.38*	.001	-.01	-.02
	(.06)	(.01)	(.01)	(.01)
Natural log hours at work assignment (past week)	-.19*	-.04*	-.03*	-.08*
	(.04)	(.01)	(.01)	(.01)
Proportion variation within prisons explained	.28	.11	.10	.10
Proportion variation within prisons	.84	.98	.98	.96
N=	12,044	12,023	12,023	12,023

Notes: [1]Maximum likelihood coefficients reported (with standard errors in parentheses); Italicized coefficients indicate relationship varies across facilities ($p \leq .05$).

*$p \leq .01$

Table 8: Facility-level effects on Incidence of Misconduct

	Assault	Drug/alcohol	Other nonviolent
Intercept	-1.08	-1.42	.31
Proportion incarcerated for violent offense	2.64**	3.44**	2.47**
	(.22)	(.78)	(.26)
Natural log assault rate	.17**	-.06	.19**
	(.05)	(.10)	(.06)
Natural log homicide rate	3.28	8.45*	.26
	(2.49)	(4.16)	(2.25)
Maximum security	.21**	.42*	.14
	(.08)	(.19)	(.09)
Crowding	-.05	.42*	.26*
	(.14)	(.21)	(.11)
Proportion variation between prisons explained	.47	.29	.56
Proportion variation between prisons	.09	.20	.03
Abuse as a child coefficient	.31	.23	.26
Proportion incarcerated for violent offense	-.22	.99	-.11
	(.29)	(.64)	(.31)
Natural log assault rate	-.04	-.19	.002
	(.06)	(.15)	(.07)
Natural log homicide rate	5.49*	.90	-1.19
	(2.63)	6.02)	(2.91)
Maximum security	.25*	-.18	.09
	(.10)	(.24)	(.11)
Crowding	.13	.38	.45**
	(.12)	(.31)	(.16)
Sexual assault by nonstranger as an adult coefficient	.05	.76	
Proportion incarcerated for violent offense	.62	.55	
	(.63)	(1.00)	
Natural log assault rate	-.20	-1.06**	
	(.14)	(.25)	
Natural log homicide rate	-17.30	-36.98**	
	(10.89)	(13.02)	
Maximum security	-.39	.76	
	(.24)	(.47)	
Crowding	.73**	1.24*	
	(.29)	(.64)	
Physical assault by nonstranger as an adult coefficient	.25	.19	.10
Proportion incarcerated for violent offense	-.34	.10	.19
	(.28)	(.68)	(.35)
Natural log assault rate	.10[a]	.29[a]	.07
	(.06)	(.16)	(.08)
Natural log homicide rate	4.41[a]	-5.19	4.12
	(2.61)	(6.17)	(3.40)
Maximum security	-.12	.44[a]	-.22[a]
	(.10)	(.26)	(.13)
Crowding	.21[a]	.21	-.17
	(.12)	(.31)	(.18)
N =	242		

Notes: [1]Maximum likelihood coefficients reported (with standard errors in parentheses).
** $p \leq .01$, * $p \leq .05$, [a] $p \leq .10$ (level-2 only).

DISSEMINATION OF RESEARCH FINDINGS

Meade, B., & Steiner, B. (2011). Assessing the relationship between exposure to different types of violence and inmate maladjustment. A paper presented at the annual meeting of the American Society of Criminology. Washington, DC: November.

Steiner, B., & Meade, B. (2012). Assessing the effects of facility environments on the relationship between exposure to violence and inmate misconduct. A paper presented at the annual conference of the Academy of Criminal Justice Sciences. New York, NY: March.

Meade, B., & Steiner, B. (2012). Assessing the relationship between exposure to different types of violence and inmate mental health. A paper presented at the annual meeting of the American Society of Criminology. Chicago, IL: November.

Meade, B., & Steiner, B. (In Press). The effects of exposure to violence on inmate maladjustment. *Criminal Justice and Behavior*.

Note: Additional manuscripts are currently in progress.