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Longitudinal Prediction of Violence Victimization and Perpetration of Female Prison Inmates Based on Trauma Symptoms

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Longitudinal Prediction of Violence Victimization and Perpetration of Female Prison Inmates Based on Trauma Symptoms

Abstract

The population of female inmates in the U.S. is growing rapidly, but this population remains understudied relative to male inmates. Many female inmates arrive at prison with significant trauma histories and symptoms, and women's prisons contain high rates of violence. This study examined whether trauma symptoms at intake would predict violence victimization and perpetration during the subsequent year for a sample of first-time female inmates. Four scales of the Trauma Symptom Inventory-2 (TSI-2; Briere, 2011) were examined as potential predictors, including Anxious Arousal, Anger, Intrusive Experiences, and Tension Reduction Behavior. Rates of trauma symptoms varied between moderate and high relative to the norming sample, which was composed of non-incarcerated women. Rates of institutional violence were substantial, but still lower than some of the higher estimates from existing literature. None of four TSI-2 scales were significantly predictive of violence victimization or perpetration during the first year of incarceration. The results of this study suggest that although rates of violence and trauma symptoms in prison constitute significant problems, the four types of trauma symptoms examined are not predictive of being the victim or perpetrator of violence.

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LONGITUDINAL PREDICTION OF VIOLENCE VICTIMIZATION AND
PERPETRATION OF FEMALE PRISON INMATES BASED ON TRAUMA
SYMPTOMS

A DISSERTATION
SUBMITTED TO THE FACULTY
OF
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Abstract

The population of female inmates in the U.S. is growing rapidly, but this population remains understudied relative to male inmates. Many female inmates arrive at prison with significant trauma histories and symptoms, and women's prisons contain high rates of violence. This study examined whether trauma symptoms at intake would predict violence victimization and perpetration during the subsequent year for a sample of first-time female inmates. Four scales of the Trauma Symptom Inventory-2 (TSI-2; Briere, 2011) were examined as potential predictors, including Anxious Arousal, Anger, Intrusive Experiences, and Tension Reduction Behavior. Rates of trauma symptoms varied between moderate and high relative to the norming sample, which was composed of non-incarcerated women. Rates of institutional violence were substantial, but still lower than some of the higher estimates from existing literature. None of four TSI-2 scales were significantly predictive of violence victimization or perpetration during the first year of incarceration. The results of this study suggest that although rates of violence and trauma symptoms in prison constitute significant problems, the four types of trauma symptoms examined are not predictive of being the victim or perpetrator of violence.

Search terms: Prison adjustment, Prison violence, Trauma, TSI-2, PVI

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Longitudinal Prediction of Violence Victimization and Perpetration of Female Prison Inmates based on Trauma Symptoms

The number of women incarcerated in the United States is currently larger than it has ever been before (Bonczar, 2003). In addition, the rate of increase of incarceration among women is greater than the rate of increase among males in all classes of major crimes (Greenfeld & Snell, 1999; Sabol & Couture, 2008). However, there is a general paucity of empirical research investigating the unique experiences of female inmates, especially when compared to the number of studies of male inmates.

Trauma histories and institutional violence are two serious problems faced by many women in prison. Most studies of trauma histories among female inmates find high rates in comparison to non-incarcerated groups. For example, Greenfeld and Snell (1999) found that that 46% of the female inmates in their sample reported ever having been physically abused and 39% reported ever having been sexually abused. Although physical violence rates in women's prisons are generally found to be lower than rates in otherwise comparable male prisons, violence rates among female inmates are still high enough to merit concern. For example, Beck, Harrison, and Adams (2007) found that female inmates were the victims in 18% of all alleged cases of inmate-on-inmate sexual violence reported by prison authorities in 2006, and victims in 35% of all alleged cases of staff-on-inmate sexual violence during this time period.

Many studies suggest a link between historical traumatic experiences and increased rates of both subsequent violence victimization and subsequent violence perpetration. For example, several meta-analyses of sexual abuse show that previous victims are at increased risk for revictimization (Arata, 2002; Messman & Long, 1996;

Polusny & Follegge, 1995), and similar connections have been found with non-sexual physical abuse (Browne, Miller, & Manguin, 1999; Schaaf & McCanne, 1998). Links between historical trauma and future violence perpetration are more strongly supported for males (Maxfield & Widom, 1996; Smith, Rosen, Middleton, Busch, Lundeberg, & Carlton, 2004), but some prison-based research shows similar correlations among female inmates (Snell & Morton, 1994; Warren, Hurt, Loper, Bale, Friend, & Chauhan, 2002b).

This study involved a one-year, longitudinal research design in which researchers followed 82 female inmates during their first year of incarceration. Trauma symptoms were assessed at the beginning of the study, and violence victimization and perpetration were tracked during the follow-up period. The study addresses rates of trauma symptoms, rates of violence victimization and perpetration, and hypothesized links between trauma history and violence victimization and perpetration in prison.

Literature Review

Women in Prison

Rates of Incarceration

Women in the United States are being incarcerated at higher rates than ever before. Bonczar (2003) published the most up-to-date Bureau of Justice Statistics (BJS) report on the prevalence of incarceration in the U.S. population, analyzing data obtained between 1974 and 2001. Among the total U.S. female population, 0.2% had ever been incarcerated in a state or federal prison in 1974, 0.3% in 1991, and 0.5% in 2001. This amounts to a 2001 total of 581,000 U.S. women who had ever been incarcerated in state or federal prison. Among the total U.S. population of Caucasian females, 0.1% had ever been incarcerated in 1974, .02% in 1991, and 0.3% in 2001. Among the total U.S. population of African American females, 0.6% had ever been incarcerated in 1974, 0.9% in 1991, and 1.7% in 2001. Among the total U.S. population of Hispanic females, 0.2% had ever been incarcerated in 1974, 0.4% in 1991, and 0.7% in 2001.

These rates of incarceration are considerably lower than the rates for men during the same time periods, but rates of incarceration are increasing even more quickly for women (2001 population is 250% of the 1974 population) than for men (2001 population is 213% of the 1974 population; Bonczar, 2003). For comparison, the 2001 rates of having ever been incarcerated were 4.9% for all U.S. males, 2.6% for U.S. Caucasian males, 16.6% for U.S. African American males, and 7.7% for U.S. Hispanic males. Bonczar also estimated the percentages of various groups of women who would go to prison at some point in their lifetime, incorporating predicted incarceration rates in future decades. He projected that at some point in their lifetimes, the rates of ever having been

incarcerated would be 1.8% for U.S. women, 0.9% for Caucasian women, 5.6% for African American women, and 2.2% for Hispanic women.

Sabol and Couture (2008) published the most recent BJS report on the U.S. prison population, analyzing data obtained in June 2007. They found that out of all current inmates in U.S. state and federal prisons, 7.2% were women. This amounts to a total U.S. female prison population of 115,308 at the time of data collection, 124% of the population in December 2000. By comparison, there were a total of 1,479,726 U.S. males incarcerated in state and federal prisons in 2007, 114% of the population in December 2000. Of the total population of female inmates in state prisons in 1998, 28% had been convicted of a violent offense as their most serious charge, 27% of a property offense, 34% of a drug offense, an 11% as a public-order offense (Greenfeld & Snell, 1999). Of the total population of female inmates in federal prisons in 1998, 7% had been convicted of a violent offense as their most serious charge, 12% of a property offense, 72% of a drug offense, and 8% of a public-order offense. Overall, the increases in incarceration of women in all major classes of crimes outpaced the increases in incarceration of men.

Similar incarceration rates and increases are evident among Canadian women. Trevethan (2000) reported that the proportion of female inmates in provincial/territorial custody increased from 5% to 9% between 1980 and 2000, and that for federal inmates, the increase was from 3% to 4%. This amounts to a total of 1,807 Canadian women who are currently incarcerated. These women tended to be under 35, single, unemployed, and educated to grade nine or below.

In summary, more U.S. women than ever before are currently incarcerated. Furthermore, the rate of increase of incarceration among females is greater than the rate

of increase among U.S. males in all classes of major crimes. Women in prison differ from incarcerated males in a number of ways, one of the most prominent being the high rates of past abuse, victimization, and trauma among female inmates.

Trauma Histories among Female Inmates

Histories of abuse and trauma appear to be very common among female prison inmates, although researchers use different operational definitions of abuse and trauma and provide varying estimates of prevalence. Greenfeld and Snell (1999) surveyed all female inmates at all state prisons in 1998 about physical and sexual victimization both before and after age 18. The authors reported that 18% of the inmates reported ever having been physically abused (but never sexually abused), 11% reported ever having been sexually abused (but never physically abused), and 28% reported ever having been both physically and sexually abused. This amounts to three times the reported physical and/or sexual abuse rates of male inmates (Snell & Morton, 1994).

Warren et al. (2002b) screened 802 female inmates at intake to a maximum security prison in Virginia. Participants were questioned about violence inflicted before age 18 (rape, sexual assault other than rape, incest, physical assault by adult, and physical assault by minor) and violence inflicted after age 18 (rape, sexual assault other than rape, physical assault, robbery, theft, and any other type of crime). Fifty-five percent of the participants reported sexual victimization before age 18, and 39% reported physical victimization. Twelve percent reported sexual victimization within the six months preceding prison entry, and 19% reported physical victimization. It should be noted that these prevalence rates are significantly higher than those in Greenfeld and Snell's (1999) study; this highlights the general variability in the relevant literature.

Browne et al. (1999) examined lifetime prevalence and severity of physical and sexual victimization among 150 women incarcerated in a maximum security prison in New York. Participants were questioned about violence inflicted before age 18 (physical violence, severe physical violence or threats against life, and sexual molestation), physical violence and threats by adult intimate partners inflicted after age 18, and lifetime physical and sexual victimization by strangers. Seventy percent of the participants reported having been severely physically abused as a child or adolescent. Fifty-one percent reported having been sexual abused during childhood or adolescence, and of these women, 42% estimated that the duration of sexual abuse was one year or longer. Seventy-five percent reported being the victim of violence by an intimate partner as an adult, with 46% reporting that they required medical treatment for resulting injuries. Seventy-seven percent of the participants reported being the victim of violence by someone other than an intimate partner.

Islam-Zwart and Vik (2004) studied 92 female inmates in a minimum-security prison. Participants were asked separately about childhood and adult sexual abuse during a clinical interview. The researchers found that 65.9% of the participants reported having been sexually assaulted as either a child or an adult, with 31.8% reporting sexual assault both as a child and as an adult. In this sample, sexual assault history was significantly associated with poorer adjustment to prison life both at intake and after two weeks of incarceration.

Zlotnick and Pearlstein (1997) studied 85 female inmates at a prison in Rhode Island, assessing trauma history using the Clinician-Administered Assessment Interview for Adults. She found that 40% reported childhood sexual abuse, 55% reported childhood

physical abuse, 53% reported adult rape, and 63% reported adult nonsexual assault. Additionally, 48% reported witnessing violence in adulthood, and 41% reported other types of trauma. Diagnostically, 48.2% of the women met the criteria of Posttraumatic Stress Disorder (PTSD) at the time of the study.

Sheridan (1996) studied 46 female and 35 male inmates who participated in a similar type of substance abuse program while incarcerated. Of the women, 68.9% reported ever having been physically abused, 53.3% sexually abused, and 68.9% emotionally abused. These rates are all higher than the rates for the men, of whom 65.7% reported a history of physical abuse, 14.7% reported a history of sexual abuse, and 54.3% reported a history of emotional abuse.

Pollard and Baker (2000) studied 70 female inmates who were incarcerated in an Australian prison, assessing trauma history using the Caraniche Self Report Questionnaire. Of these participants, 52.9% reported having been physically abused before the age of 19, 37.7% reported being sexually abused, and 66.2% reported being emotionally abused. The wide variety of prevalence rates of abuse and trauma among these studies should again be emphasized.

It should also be emphasized that not all of the individuals who are exposed to traumatic experiences develop traumatic symptoms, although a substantial minority appear to. Many of the studies that have been conducted to address this issue use the full diagnostic criteria for Posttraumatic Stress Disorder (PTSD) as an outcome, therefore likely underestimate the percentage of people who develop sub-diagnostic trauma-related symptoms following a traumatic event. The National Center for PTSD (2009) states that 20% of the women exposed to traumatic events develop PTSD. In addition, this center

lists as factors that may increase this percentage several things common among incarcerated women, including substance abuse, lack of a socially supportive environment, stressful life events, poor education, and the presence of other mental disorders. Yehuda, McFarlane, and Shalev (1998) state that of the 90% of Americans who are exposed to a traumatic event at some point during their lifetimes, 18% of the women will develop PTSD, although this percentage varies widely across specific types of trauma. Perry and Azad (1999) conservatively estimate the PTSD rate among children who have been abused as approximately 30%.

These studies generally provide evidence that many female inmates have experiences of trauma and abuse prior to incarceration. Greenfeld and Snell (1999)'s study was the most comprehensive, and noted that 46% of the inmates reported ever having been physically abused and 39% reported ever having been sexually abused. Several of the other studies reviewed reported physical and sexual abuse rates above 50%, and in general there is significant variability among estimates of the prevalence rates of various types of abuse and trauma. This variability may result from different operational definitions, different data collection strategies (e.g., clinical interview, self-report questionnaire, institutional records), and differences among prisons. Taken on its own, the general trend of high rates of historical trauma among female inmates should engender concern on the part of mental health and corrections professionals. However, this is not the only serious problem faced by women who are sentenced to serve prison time. Women's prisons also have high rates of institutional violence, with inmates being both perpetrators and victims of physical and sexual aggression.

Institutional Violence among Female Inmates

Several current reports from the Bureau of Justice Statistics (BJS) contain information about institutional violence by female prison inmates. Maruschak (2008) examined data on 46,300 state and 4,700 federal inmates incarcerated in 2004. Of the female inmates in state prisons, 8.5% reported being injured in a fight while incarcerated, compared with 3.6% of women in federal prisons. Beck et al. (2007) and Beck and Harrison (2008) studied sexual violence reported both by correctional authorities in 2006 and by female inmates in 2007. Female inmates were the victims in 18% of all alleged cases of inmate-on-inmate sexual violence reported by prison authorities in 2006 (Beck et al., 2007). Female inmates were the victims in 35% of all alleged cases of staff-on-inmate sexual violence reported by prison authorities in 2006. Three of the ten U.S. prisons with the highest rates of inmate-reported sexual violence were women's prisons, with 10.8% of inmates at an Indiana prison, 10.3% at a California prison, and 9.5% at a Texas prison reported being sexually victimized while incarcerated (Beck & Harrison, 2008). At all three of these facilities, inmate-on-inmate sexual violence was more often reported than staff-on-inmate sexual violence.

In the Warren et al. (2002b) retrospective survey of 802 maximum-security female inmates, participants reported perpetrating an average of 0.97 (SD = 1.83) violent acts since being incarcerated. The most common type of action was violent threatening (24%), followed by pushing, grabbing, or shoving (20%). Two percent of the women reported forcing sex on someone while incarcerated.

McClellan (1994) compared the disciplinary records of 245 female and 271 male inmates in Texas prisons between 1989-1990. The inmates were randomly selected and

were not matched, but the study still provides interesting comparative data. Among the ten most frequent disciplinary infractions for females were three involving interpersonal violence: threatening an officer (9.0% of female participants cited), striking an officer (7.8% of female participants cited), and fighting without a weapon (16.0% of female inmates cited). Overall, 7.8% of the infractions committed by females were threatening, violent, or sexual, compared with 6.4% of the infractions committed by males. (This difference was not tested for significance.) It merits emphasizing the point that female inmates had a slightly higher rate of violent infractions than did male inmates.

Kruttschnitt and Krmpotich (1990) studied aggressive behavior among 53 female inmates in a minimum-security prison in Minnesota using self-report surveys. The surveys addressed the entire period of each inmate's prison incarceration. These authors reported that 15.1% of the participants reported being disciplined for institutional violence, compared with 69.8% who reported discipline for non-violent acts and 15.1% who denied ever having been disciplined since being incarcerated. Race and childhood family structure emerged as the only demographic and background factors that were significantly associated with institutional violence. Specifically, white inmates were less likely to be disciplined for institutional violence than were minority inmates (relatively evenly split between African Americans and Native Americans). Inmates who were raised by both parents were more likely to be disciplined for institutional violence than were inmates raised in "nontraditional" households. The authors express caution at interpreting the first finding, and speculate that the second may be related to greater modeling of conflict in households with both parents.

Lindquist (1980) compared the characteristics of 147 female and 243 male inmates in Florida prisons who had been disciplined for their behavior. These numbers represent all individual receiving disciplinary infractions during 1976, and although the inmates were not matched, the study still provides interesting comparative data. Of the inmates who were disciplined, 9.5% had been caught physically fighting, compared with 11.9% of the males. Bottoms (2000) reported that among inmates in England and Wales in 1996, female inmates committed more assaults on both staff and other inmates than did male inmates. Specifically, there were 39 assaults on staff per 1,000 inmates in male prisons versus 115 per 1,000 in female prisons. There were 34 assaults on other inmates per 1,000 inmates in male prisons versus 59 per 1,000 in female prisons.

Harer and Langan (2001) attempted to predict violence among 24,765 female and 177,767 male inmates in U.S. federal prisons between 1991 and 1998. The following percentages of female inmates received formal disciplinary charges for these categories of infractions: killing or attempting, 0%; serious assault, 0.07%; weapon possession, 0.07%; fighting, 3.1%; threatening bodily harm, 0.7%; and less serious assault, 1.3%. Although the rates of violence were lower in all categories of violence for women than for men, the authors found that the same risk assessment instrument predicted violence equally well among both sexes. Items in this risk assessment instrument included (1) type of detainer used by local authorities in addition to federal conviction (e.g., aggravating factors, dangerousness to community), (2) severity of current offense, (3) history of escapes, (4) history of violence, (5) precommitment status (i.e., whether allowed to surrender voluntarily), (6) age, (7) criminal history (both violent and nonviolent), and (8) educational attainment. The violence incidence rates in this study are notably lower for

both male and female inmates than those of several other studies discussed previously, perhaps because Harer and Langan only examined federal prison inmates.

Casey-Acevedo and Bakken (2001) studied 123 female inmates in a maximum security prison who had been recently disciplined for their behavior. These inmates were divided into two groups based upon sentence length, with a total of 64 short-term (less than 18 months) and 59 long-term (more than 18 months) inmates. Twenty-seven percent of the short-term inmates who were disciplined had committed violent acts, compared with 57% of the long-term inmates. This study suggests that institutional violence may increase with sentence length. Ruback and Carr (1984) studied disciplinary infractions among 561 female inmates and found that the number of inmates housed in an institution was significantly and positively correlated with disciplinary infractions ($r = .18, p < .01$).

In summary, there are currently more women incarcerated in the United States than at any previous point in history. Furthermore, the incarceration rate for women is growing at a faster rate than that of men. However, the majority of prison-based research has been conducted using male inmates, and its generalizability to female inmates is questionable. The available research on female inmates generally indicates that these individuals have high rates of trauma prior to incarceration. This research also indicates that institutional violence rates among female inmates tend to be less than among male inmates, but still high enough to constitute a systemic problem. However, measurement of the prevalence rates of historical trauma and institutional violence is difficult because of varying operational definitions of the terms, variability in prison environments, and varying research methodologies (e.g., self-report vs. institutional records).

Given the apparent prevalence of both trauma histories and institutional violence among female inmates, it is possible that there is a link between the two phenomena. Existing literature suggests that individuals who have experienced trauma and abuse in the past may be more likely to be both victims and perpetrators of violence. Such research on cycles of violence and revictimization may have implications for the treatment and management of women in prison who have trauma histories.

Trauma History and Subsequent Involvement in Violence

Association with Violence Victimization

A number of studies have concluded that women who have a history of physical or sexual abuse are more likely than women without such abuse histories to be physically or sexually abused in the future. The most prolific research has been done regarding sexual victimization and revictimization, and there are a number of comprehensive reviews in this area. In her 2002 literature review of 26 sexual revictimization studies, Arata concluded that women with a history of child sexual abuse are two to three times more likely to be victimized as adults than women without a similar abuse history. This relationship was strongest for women who were physically contacted during childhood abuse (as opposed to, for example, being the victim of indecent exposure) or who were revictimized during their adolescence. Messman and Long (1996) reach a similar conclusion in their literature review, and Polusny and Follette's (1995) literature review suggested greater sexual and physical victimization as adults among those who had experienced sexual abuse as children.

More recently, studies have begun to broaden their focus to include nonsexually physical victimization and revictimization. In their study of 150 female inmates, Browne

et al. (1999) reported high rates of both past and current physical and sexual violence. The researchers examined correlations between childhood and adult abuse. They found that the women who were severely physically abused as children were significantly more likely (80%, compared with 62% of those who denied such childhood abuse) to also report experiencing severe physical abuse as an adult. The researchers also found a similar pattern with sexual abuse, with 40% of those reporting sexual abuse before age 18 reporting sexual assaults by non-partners as adults, compared with 23% of those who denied childhood sexual abuse.

Schaaf and McCanne (1998) studied both physical and sexual revictimization in a sample of 322 female college students, dividing them into groups who had experienced no abuse as children (65.5%), physical abuse only (16.5%), sexual abuse only (8.4%), or both physical and sexual abuse (9.6%). Of those women who had not been abused as children, 38.1% reported either physical or sexual victimization as adults, compared with 50.9% of the women who had been physically abused as children (significant difference; $\chi^2(1, n = 264) = 7.17, p < .01$), 33.3% of those who had been sexually abused (not a significant difference; numbers not cited), and 77.4% of those who had been both physically and sexually abused (significant difference; $\chi^2(1, n = 242) = 24.37, p < .001$). Further analysis revealed that the adult victimization rate among those who reported both physical and sexual abuse as children was statistically significantly greater than the adult victimization rate among those who denied abuse during childhood.

Smith, Davis, and Fricker-Elhai (2004) studied the sequelae of interpersonal violence in a sample of 340 female college students. Participants were separated into two groups based upon their denial or endorsement of a history of physical or sexual abuse or

assault, either as minors or as adults. They found that the women who had experienced interpersonal violence perceived greater benefits, fewer risks, and greater expected involvement in sexual risk-taking and substance abuse, which are risk factors for future revictimization. They found that beliefs about these risk factors mediated expected future involvement, as those previously-victimized women who perceived fewer costs and greater benefits in risky behaviors were more likely to perform those behaviors.

Empirical studies of physical and sexual violence suggests that women who have histories of victimization are at greater risk for future violence than are women without such histories. Understanding such links is of the utmost importance to those who work with the victims of violence. Such findings have had some impact on correctional policies, as Bill (1998) discussed in an article in *Corrections Today*. Among other things, she recommended that security staff be knowledgeable about and supportive of treatment programs, that intrusive searches be conducted only by female security staff, that counseling programs integrate discussion of issues such as child custody and employment, and prison administrators seek to perpetuate an environment of courtesy and compassion. Campbell (2007) warned that women who have a history of being abused are not only at increased risk for physical revictimization, but also for being killed by their abusers, supporting the critical importance of understanding the process of revictimization. Trauma histories are not just associated with violent victimization, however; they also appear to be associated with violence perpetration.

Association with Violence Perpetration

People who have been the victims of physical and sexual violence in the past appear to be at increased risk for perpetrating similar violence in the future. One

manifestation of this pattern is the “cycle of violence” phenomenon, whereby early exposure to physical abuse is associated with increased adult violence perpetration. This phenomenon is well-researched and appears fairly well-supported among males (Maxfield & Widom, 1996; Smith et al., 2004), although the conclusions of some studies are tempered by methodological and other limitations (Widom, 1989). Socialization differences and the differential violence rates among men and women discussed earlier would probably be enough to require a separate examination of the phenomenon among women, but in addition to this reasoning, Caspi et al. (2002) present a genetic explanation for gender-specific mechanisms at work. These researchers studied 556 males and 481 females, and found that an MAOA-encoding gene on the X chromosome moderated the relationship between childhood maltreatment and adult antisocial behavior, including violence. Females have two X chromosomes, as opposed to the male XY genotype, meaning that whereas a male with the MAOA mutation on a single X chromosome may exhibit its full behavioral effect, a female would need the mutation on both X chromosomes for a comparable behavioral effect, making its occurrence less likely.

Snell and Morton’s (1994) BJS report on incarcerated women found that those who reported abuse histories were “more likely to be in prison for a violent offense (42% versus 25%) and less likely to be serving a sentence for a drug offense (25% versus 38%) or a property offense (25% versus 31%)” (p. 6). Campbell writes specifically about homicide in her 2007 literature review, noting that in 75% of cases where women commit murder, they kill a husband, ex-husband, or lover where there was a documented history of domestic violence.

Warren et al. (2002b)'s study of 802 female inmates involved an attempt to predict institutional violence based on a variety of factors, including victimization history. The researchers found that, among other factors, those women who had histories of victimization were significantly more likely to perpetrate violent acts in prison (F change (2,306) = 5.65, $p < .01$; R^2 change = .03; Final Model adjusted R^2 = .13). They speculate that “the behavior that culminates in the incarceration of women and the perpetration of violence within this highly structured environment is a multidimensional trajectory that is characterized, in most cases, by a lengthy premorbid period of abuse, psychiatric disturbance, and general life maladjustment” (p. 145).

Islam-Zwart and Vik (2004) examined 92 female inmates in a minimum security prison. They found that 65.9% of the women had some history of sexual assault, be it as a child only (6.8%), as an adult only (27.3%), or both as a child and an adult (31.8%). The researchers reported that externalized problematic adjustment, defined as arguments and fights, was significantly higher for women with only adult sexual violence histories (PAQ Externalizing $M = 0.58$, $SD = 1.78$), compared with women who had both childhood and adult histories ($M = 0.14$, $SD = 0.59$) and with women who denied having assault histories ($M = 0.00$, $SD = 0.18$). The authors speculated that women with only adult sexual violence histories may be less used to dealing with hardship, less comfortable in institutional and bureaucratically-managed settings because of less frequent childhood exposure, and less prone to cope with conflict dissociatively than inmates with histories of childhood sexual violence.

Merrill, Crouch, Thomsen, and Guimond (2004) studied 775 female and 592 male U.S. Navy recruits in order to assess risk of both intimate partner violence perpetration

and child physical abuse perpetration. Predictive measures included a measure of posttraumatic symptoms, which was significantly predictive of both types of violence perpetration.

Dodge, Bates, and Pettit (1990) performed a prospective, longitudinal study of 309 children (47% female) beginning at age four. Although this study dealt only with young children, it was well-designed, included nearly as many females as males, and suggests a mechanism for intergenerational violence cycling. Ratings were made of each child's level of physical harm before the beginning of the study, and at six months a follow-up was performed to assess each child's level aggressive behavior. Even after controlling for variables such as health problems, temperament, poverty, domestic violence, and family stability, child physical abuse was still predictive of later aggressive behavior. This appeared to be attributable to impaired processing of social cues. These processing deficits included failure to process relevant social cues, biased attendance to hostile cues, and poor behavioral problem-solving of interpersonal conflicts.

Rationale for Current Study

The literature I have reviewed thus far indicates that the population of female prison inmates in the United States is larger than ever before and growing at a faster rate than that of male prison inmates. Among female inmates, trauma and institutional violence are prevalent phenomena, although there is much variability in categories of estimates because of methodological difficulties and variability among groups studied. Additional research into the sequelae of historical trauma provides evidence that it may be associated with both future violence victimization and future violence perpetration.

The present study has three purposes. First, I examined rates of trauma-related symptoms among a sample of newly-incarcerated women using the Trauma Symptom Inventory-2 (TSI-2; Briere, 2011). I hypothesized that rates of trauma symptoms in this sample would be higher than the average of the normative sample. Second, I examined rates of violence victimization and perpetration among that sample of women during their first year in prison using the Prison Violence Inventory (PVI; Warren et al., 2002b). I hypothesized that moderate-to-high rates of violence victimization and perpetration would be common in this sample, with this range defined as being similar to rates in other published studies with similar samples. Finally, I determined whether trauma-related symptoms at intake were predictive of violence victimization or perpetration during the participants' first year in prison. I hypothesized that those inmates in my sample who had high levels of trauma symptoms would be more likely to both be victimized violently and to perpetrate violent acts while in the first year of prison incarceration.

It is my intention not only to illuminate these problems faced by women in prison, but also to examine a possible predictive pathway which may underscore the need for trauma-focused psychological treatment in women's prisons. Clearly, such problems constitute a major mental health issue within correctional mental health care. Furthermore, if trauma symptoms at baseline are predictive of either violence victimization or perpetration while incarcerated, then trauma-focused treatment is a matter of correctional security and institutional stability as well as mental health.

Method

Sample Characteristics

Subjects in this study were 82 adult females who were admitted to the intake unit of a prison in Oregon. These respondents were drawn from an original sample of 150 inmates included in the larger Women's Adjustment to Prison (WAP) study, and these 83 were selected because they returned all four follow-up questionnaires over the course of a year. None of the participants had ever been incarcerated in a prison previously, although most had served some time in county or city jails, and all were required to have received prison sentences of at least 18 months¹. Following intake, the women were placed in either the minimum or medium security facilities in the prison complex to serve their sentences.

Demographic and other descriptive information regarding this sample is summarized in Table 1. The average sentence length was just over 39 months and the median was 25 months (range 12-240 months); note that the presence of a few inmates with very long sentences skews this distribution. About a third of the participants had a violent index offense (which in this study was defined as any severity of the following charges, including attempts and revocations of associated probation/parole: Assault, Child Sexual Abuse, Manslaughter, Negligent Homicide, Rape, Robbery, Sodomy, Unlawful Sexual Penetration, and Unlawful Use of a Weapon). Nearly three-quarters of the participants had been on probation before their first prison term. The average age was about 34 (range 18-63), and most of the women were or had been legally married. The average number of biological children was just over two, and adoption or fostering was

¹ This requirement was increased from 13 months, the original minimum, after several of the participants were released earlier than expected.

rare but represented within this sample. A large majority of the sample was Caucasian, which is fairly representative of the demographic composition of Oregon. The average education was just past 11th grade, meaning that a majority of participants did not graduate from high school. When the 82 study completers and were compared to the noncompleters on age, highest grade completed, sentence length, race, prior probation, and violent index offense, only sentence length was significantly different, with inmates with longer sentences being significantly more likely to complete the study.

Table 1

Descriptive Statistics

| Variable | <i>M</i> | <i>SD</i> |
|--------------------------|----------|-----------|
| Age (years) | 34.46 | 11.51 |
| Legal marriages | 0.85 | 1.09 |
| Highest grade | 11.22 | 1.99 |
| Biological children | 2.12 | 1.80 |
| Adopted/foster children | 0.04 | 0.19 |
| Sentence length (months) | 39.18 | 41.03 |

| | <i>%</i> | <i>n</i> |
|-----------------------|----------|----------|
| Race | | |
| Caucasian | 81.7% | 67 |
| African-American | 6.1% | 5 |
| Hispanic/Latino | 4.9% | 4 |
| Asian-American | 3.7% | 3 |
| Native American | 2.4% | 2 |
| Bi-/Multi-Racial | 1.2% | 1 |
| Prior probation | 72.0% | 59 |
| Violent index offense | 34.1% | 28 |

Instruments

Trauma Symptom Inventory

The Trauma Symptom Inventory-2 (TSI-2; Briere, 2011) is a 247-item instrument that assesses symptoms and outcomes associated with traumatic stress². It yields 12 clinical subscales and two validity subscales. Clinical scales (with asterisks indicating scales tested in this study) include Anxious Arousal*, Depression, Anger*, Intrusive Experiences*, Defensive Avoidance, Dissociation, Somatic Preoccupations, Sexual Disturbance, Suicidality, Insecure Attachment, Impaired Self-Reference, and Tension Reduction Behavior*. Power analysis indicated that this study's sample could robustly support four independent variables, and the four scales indicated by asterisks were chosen based upon theoretical reasoning that they might be the most powerful predictors of the examined outcomes. Literature pertaining to the original TSI (Briere, 1995) is reviewed below, given that only one study using the TSI-2 (Gray, Elhai, & Briere, 2010) has been published at the time of the writing of this dissertation. Sixty-four percent of TSI-2 items were either added to or rewritten from the original TSI. Clinical scales increased from ten to twelve, and validity scales decreased from three to two, with substantial reconfiguring of several to more closely match the latest research on PTSD and associated trauma symptoms.

The four TSI-2 (Briere, 2011) scales included in this analysis measure different types of trauma symptoms. Anxious Arousal measures both symptoms common to all anxiety disorders and hyperarousal that is more specific to posttraumatic experience. Anger measures irritability, low frustration tolerance, and short temper. Intrusive

² The data from this study make up a supplemental comparison normative group in the TSI-2 manual.

Experiences measures flashbacks and other forms of vivid, upsetting memories of traumatic events. Tension Reduction Behavior measures the degree to which distress is externalized through “acting out” behaviors like self-mutilation, suicidal gestures and attempts, aggression, and inappropriate sexual behavior.

The original TSI was normed with several samples, including the original standardization sample, a sample of U.S. Navy recruits, a sample of college students, and a clinical sample of traumatized individuals (Briere, 1995; Briere, Elliott, Harris, & Cotman, 1995; Smiljanich & Briere, 1993). The average internal consistency estimates (i.e., coefficient alpha) for each sample was, respectively, .86, .84, .84, and .87. Criterion-related validity in these samples appeared strong. In the standardization sample, TSI scores correctly predicted a diagnosis of PTSD in 91% of the cases (Briere, 1995). A 2005 survey of the International Society for Traumatic Stress Studies found that the TSI was the most widely-used self-report measure of PTSD symptoms, with 23% of clinicians reporting using it with clients (Elhai, Gray, Kashdan, & Franklin, 2005a).

Although the TSI is a relatively accurate diagnostic instrument for use in PTSD cases (Briere, 1995; McDevitt-Murphy, Weathers, & Adkins, 2005), it is sensitive to more than just the presence-or-absence trauma criterion used in the current PTSD diagnostic criteria (American Psychiatric Association, 2000). The TSI is based upon the emerging theory of complex trauma, which states that individuals who undergo extended periods of traumatic experience have different, and in many cases more severe, symptoms than individuals who experience a single traumatic event (Briere, 1995). As such, the TSI is demonstrates sensitivity to different patterns of symptoms resulting from different patterns of trauma (Green et al., 2000).

The TSI has been used successfully in several studies of incarcerated women (Bradley & Follingstad, 2003; Pollard & Baker, 2000; Roe-Sepowitz, Bedard, & Pate, 2007). It has also been used in a number of studies that examine links between victimization history and future violence victimization or perpetration (Merrill et al., 2004; Messman-Moore, Brown, & Koelsch, 2005; Schaaf & McCanne, 1998; Smith et al., 2004; Van Bruggen, Runtz, & Kadlec, 2006). The TSI appears somewhat resistant to malingering of posttraumatic symptoms (Edens, Guy, Otto, Buffington, Tomicic, & Poythres, 2001; Edens, Otto, & Dwyer, 1998), although some researchers caution that TSI validity scales on their own are not accurate enough classifiers of malingered vs. genuine symptoms to be used on their own (Elhai et al., 2005b, 2007).

Prison Violence Inventory

The Prison Violence Inventory (PVI; Warren et al., 2002b) is a checklist-style instrument that assesses rates of violence victimization and perpetration in prison settings. This instrument was used in this study with the permission of the authors. The instrument contains 12 items that are each answered twice in a yes/no format, once pertaining to victimization and once pertaining to perpetration. Items address whether a participant, for example, threatened to hit, throw, or do other types of harm; pushed, grabbed, or shoved; physically forced someone to have sex; or attacked with object used as a weapon.

The PVI has been used in a handful of research studies about prison violence (Komarovskaya, Loper, & Warren, 2007; Loper, 2003; Warren et al., 2002a; Warren, Hurt, Loper, Chauhan, 2004; Warren et al., 2002b). Warren et al. (2002b) found robust correlations between self-reported violence measured by the PVI and official records of

institutional rule violations. Researchers have been able to use the simple, checklist-style questions of the PVI to construct scales using some of the items (e.g., only violence victimization, only violence perpetration, only threats of violence, only violence involving physical contact, etc.; Warren et al., 2002b; Warren et al., 2004).

We administered the PVI at baseline and after three, six, nine, and twelve months of incarceration, each time worded so that there would not be overlap. We added three-, six-, nine-, and twelve-month scores of the victimization and perpetration variants of items 1-10 in order to obtain cumulative counts for each inmate over the year of the study. It should be emphasized that the result was not a simple count of violent incidents over the course of a year, but rather an overall sum of the three-month sums of checklist items. Therefore, if an inmate were to have a final PVI scale score of two, it could indicate one three-month period in which two different types of incidents occurred, or two three-month periods in which one type of incident occurred in each.

Procedure

Permission from the Institutional Review Boards of Pacific University and the Oregon Department of Corrections was obtained prior to data collection. Researchers were given weekly lists of inmates who had not been incarcerated in prison previously, and nearly all inmates were approached with an offer to join the study. (Other inmate obligations, such as appointments and classes, prevented researchers from accessing all possible participants in a timely manner.) After giving their consent to participate in the study, the participants completed a battery of assessments, including the TSI-2 and PVI, as part of a one-on-one interview with a researcher. These initial interviews were completed between January and December 2009. Participants completed follow-up

questionnaires, including the PVI, every three months for one year. These questionnaires were submitted through the prison's internal mail system, and unlike most other inmate mail were not inspected by staff. The final questionnaires were received at the end of the January 2011. PVI item endorsements were summed to obtain cumulative scores for the entire year.

Results

This study addressed three hypotheses. The first hypothesis was that rates of trauma symptoms in this sample would be higher than the average of the normative sample of the TSI-2. The second hypothesis was that moderate-to-high rates of violence victimization and perpetration would be common in this sample, with this range defined as being similar to rates in other published studies with similar samples. These two hypotheses were addressed using data displayed in Table 2. The third hypothesis was that those inmates in my sample who had high levels of trauma symptoms would be more likely to both be victimized violently and to perpetrate violent acts while in the first year of prison incarceration. This predictive hypothesis was examined using data presented in Tables 5 and 6.

Pre-Analysis Data Screening

This study examined four independent variables (TSI-2 scales Anxious Arousal, Anger, Intrusive Experiences, and Tension Reduction Behavior), two dependent variables (PVI sums of violence victimization and violence perpetration), and four potential covariates (age, race, violent vs. nonviolent index offense, and sentence length). Imputation of missing data was planned in the event that 5% or more of the data were missing for a given IV or DV scale. However, missing data percentages were far lower than this (0.2%, or six items out of 3,280 data points, for the four TSI-2 scales; and 0.1%, or seven items out of 6,560 data points, for the two PVI scales), so the few unanswered items were simply scored as zeros.

The assumptions of multiple regression (normality, linearity, homoscedasticity, multicollinearity, and outliers) were assessed for IVs and DVs prior to further analysis.

Univariate normality was assessed through skewness and kurtosis coefficients, and bivariate normality through examination of matrix scatterplots for elliptical patterns. Linearity and homoscedasticity were assessed through examination of residual plots, which revealed no distinct patterns. Multicollinearity was assessed through examination of tolerance values. Outliers were assessed through computation of Mahalanobis' distance (D^2). All of these data characteristics were judged to be within acceptable limits except for the normality of the outcome variables. Violence victimization and perpetration were too positively skewed to employ linear regression based on a Gaussian distribution, and the degree of skewness was too extreme for adequate transformation. Furthermore, the outcome data were too overdispersed (as measured by deviance/degrees of freedom and Pearson χ^2 /degrees of freedom) to utilize Poisson regression. Therefore, negative binomial regression was selected as a method of analysis for which all assumptions were adequately fulfilled. Analyses were conducted using the Statistical Package for the Social Sciences (SPSS 17.0).

Hypotheses 1 and 2

Table 2

TSI-2 and PVI Scales

| Scale | <i>M (SD)</i> | TSI-2 T Score (%) |
|-----------------------------------|---------------|-------------------|
| TSI-2: Anxious Arousal | 12.42 (6.86) | 52 (59%) |
| TSI-2: Anger | 7.85 (7.13) | 48 (54%) |
| TSI-2: Intrusive Experiences | 11.55 (8.64) | 56 (75%) |
| TSI-2: Tension Reduction Behavior | 6.62 (6.81) | 55 (75%) |
| PVI: Violence Victimization | 2.33 (4.06) | |
| PVI: Violence Perpetration | 1.39 (3.10) | |

Table 2 summarizes the TSI-2 and PVI scale scores, which were examined to test the first two hypotheses of this study. The average TSI-2 scales Anxious Arousal and Anger were only marginally above the 50th percentile for the norming sample (comprised of non-incarcerated women). T-tests revealed that neither Anxious Arousal, $t(81) = 1.88$, $p = .063$, nor Anger, $t(81) = -1.46$, $p = .149$, were significantly different from the norming sample means. However, the TSI-2 scales Intrusive Experiences and Tension Reduction Behavior were each at the 75th percentile relative to the norming sample. T-tests revealed that both Intrusive Experiences, $t(81) = 4.24$, $p < .001$, and Tension Reduction Behavior, $t(81) = 2.82$, $p = .006$, significantly exceeded the norming sample means. When the 82 study completers were compared to noncompleters for the four TSI-2 scales, there were no significant differences between these groups. The average PVI victimization score for the entire year was slightly over two, indicating either two types of violence victimization in the same quarter or two quarters that each contained one type of violence victimization. Nearly two-thirds (61.0%) of the sample reported at least one instance of

violence victimization during the course of the year. The average PVI perpetration score was slightly over one, indicating one type of violence perpetration during one quarter of the year. Nearly one-third (30.5%) of the sample reported at least one instance of violence perpetration during the course of the year.

The most common forms of victimization were threats (with 48.8% reporting at least one instance), pushing/grabbing/shoving (24.4%), and “other” (15.5%). With regard to more serious victimization, 3.7% reported being attacked with a weapon, 0.2% reported forcible sex, and 11.0% reported being beaten by fist. The most common forms of perpetration were threats (with 19.5% reporting at least once instance), throwing objects (14.6%), pushing/grabbing/shoving (11.0%), and beating by fist (11.0%). With regard to more serious perpetration, and in addition to the 11.0% reporting beating by fist, 1.2% reported using a weapon and 0.2% reported forcing someone into sex. Slightly under half (46.0%) of the inmates who reported at least one instance of victimization also reported at least one instance of perpetration; however, nearly all (92.0%) inmates who reported at least one instance of perpetration reported at least one instance of violence. The number of inmates reporting at least one instance of each type of violence comprised 28.0% of the sample.

Hypothesis 3

Table 3

Correlations between Independent and Dependent Variables

| | 1 | 2 | 3 | 4 | 5 ⁺ | 6 ⁺ |
|---------------------------|---|-------|-------|-------|----------------|----------------|
| 1. AA | - | .65** | .75** | .69** | .29** | .38** |
| 2. Anger | | - | .59** | .77** | .28** | .42** |
| 3. IE | | | - | .74** | .30** | .41** |
| 4. TRB | | | | - | .23* | .32** |
| 5. Viol vic ⁺ | | | | | - | .58** |
| 6. Viol perp ⁺ | | | | | | - |

* $p < .05$, ** $p < .01$

⁺ Spearman Rho Correlations

AA = Anxious Arousal; IE = Intrusive Experiences; TRB = Tension Reduction Behavior; Viol vic = Violence victimization; Viol perp = Violence perpetration

Correlations between independent variables were examined (see Table 3). Pearson product-moment correlations were computed for correlations between TSI-2 scales (continuous variables), and Spearman rho correlations were computed when the PVI scales (best described as ordinal variables) were analyzed. All four TSI-2 scales examined (Anxious Arousal, Anger, Intrusive Experiences, and Tension Reduction Behavior) correlated highly with each other. This suggests that the TSI-2 scales measured closely related posttraumatic symptoms in this sample. Violence victimization and perpetration⁺ correlated highly with each other, suggesting that those experiences tended to co-occur with the same inmates. Violence perpetration correlated moderately with all four TSI-2 scales, and violence victimization correlated significantly but somewhat less strongly with all four TSI-2 scales.

Table 4

Correlations between Dependent Variables and Potential Covariates

| | 1 | 2 | 3 | 4 ⁺ | 5 |
|-----------------------|---|-------|-------|----------------|-------|
| 1. Viol vic | - | .63** | -.15 | .18 | .17 |
| 2. Viol perp | | - | -.26* | .29** | .17 |
| 3. Age | | | - | -.32** | -.18 |
| 4. Index ⁺ | | | | - | .44** |
| 5. Sentence | | | | | - |

* $p < .05$, ** $p < .01$

⁺ Point Biserial Correlations

Viol vic = Violence victimization; Viol perp = Violence perpetration; Index = Violent vs. nonviolent index offense; Sentence = Sentence length

Correlations among dependent variables and potential covariates were examined next (see Table 4). Pearson product-moment correlations were computed for all combinations of variables except those involving violent vs. nonviolent index offense (dichotomous variable), in which case point biserial correlations were computed. Violence victimization and perpetration were highly correlated. Violence victimization was not significantly correlated with age, race/ethnicity, violent vs. nonviolent index offense, or sentence length. Violence perpetration was significantly correlated with age (younger inmates perpetrated more violence) and violent vs. nonviolent index offense (inmates with violent index offenses perpetrated more violence), but not with race/ethnicity or sentence length. Because of their significant correlations with violence perpetration, age and violent vs. nonviolent index offense were included as covariates in the regression examining that outcome. Younger inmates were significantly more likely to have violent index offenses. Inmates with violent index offenses had significantly

longer sentences. Victimization and perpetration rates did not differ significantly across racial/ethnic categories, so this variable was not included as a covariate.

Table 5

Multiple Regression Analysis for Violence Victimization (Negative Binomial)

| Predictor | Victimization <i>B (SE)</i> | 95% CI | χ^2 |
|----------------------------|-----------------------------|------------|----------|
| Anxious Arousal | -.01 | -.07 - .06 | .03 |
| Anger | .05 | .01 - .12 | 2.69 |
| Intrusive Experiences | .04 | -.01 - .10 | 2.75 |
| Tension Reduction Behavior | -.03 | -.11 - .04 | .69 |

* $p < .05$, ** $p < .01$

Table 6

Multiple Regression Analysis for Violence Perpetration (Negative Binomial)

| Predictor | Perpetration <i>B (SE)</i> | 95% CI | χ^2 |
|------------------------------|----------------------------|--------------|----------|
| Age | -.01 | -.04 - .03 | 1.19 |
| Violent vs. nonviolent index | -.90* | -1.62 - -.19 | 6.09 |
| Anxious Arousal | .06 | -.03 - .15 | 1.94 |
| Anger | .07 | -.01 - .14 | 3.28 |
| Intrusive Experiences | .04 | -.04 - .11 | .87 |
| Tension Reduction Behavior | -.03 | -.12 - .06 | .44 |

* $p < .05$, ** $p < .01$

The hypothesis that the four TSI-2 scales significantly predict violence victimization (see Table 5) and perpetration (see Table 6) was tested using multiple negative binomial regression with the enter method³. This hypothesis was not supported, as none of the four TSI-2 scales were significantly predictive of violence victimization or

³ Negative binomial regression was selected as a better fit for count data in which the modal outcome was a low rate of violence, and in which overdispersion ruled out standard Poisson regression.

violence perpetration. Of the covariates tested for violence perpetration, age was not significantly predictive, but having a violent index offense was significantly predictive.

Discussion

Review of Findings

This study addressed three hypotheses. The first, that there would be moderate-to-high rates of trauma symptoms in this sample relative to the non-incarcerated norming sample, was supported by the results of this study. The average TSI-2 scales Anxious Arousal and Anger were at approximately the 50th percentile of the norming sample, whereas the TSI-2 scales Intrusive Experiences and Tension Reduction Behavior were each at the 75th percentile relative to the norming sample. The second hypothesis, that there would be moderate-to-high levels of violence victimization and perpetration in this sample relative to existing literature, received partial support by the results of this study. Nearly two-thirds of the sample reported at least one instance of violence victimization during the course of the year, and nearly one-third of the sample reported at least one instance of violence perpetration. Despite the fact that more women in this sample reported violence victimization than did not report it, these rates are lower than those in some comparable studies. Approximately half of those inmates who reported being victimized also reported committing violence, but nearly all inmates who reported committing violence also reported being victimized. The third hypothesis, that trauma symptoms at intake would predict both violence victimization and perpetration during the subsequent year, was not supported, as none of the four TSI-2 scales analyzed were significantly predictive of either violence victimization or violence perpetration.

Implications of Findings

This study represents a glimpse into the experiences of first-time female prison inmates, who have received relatively little study in prison-based literature. The design of this study provides a relatively firm foundation for its conclusions. The study's longitudinal design allows for prediction rather than merely correlation. The privacy afforded to inmates, and the response rate relative to other prison-based samples, suggests that the self-report of the participants can be given substantial credence.

Rates of trauma symptoms as measured by this study's four TSI-2 scales varied between moderate and high relative to the norming sample, which was composed of non-incarcerated women. This is consistent with existing literature suggesting that incarcerated women have elevated trauma histories and symptoms relative to non-incarcerated women. Furthermore, this study was designed prospectively rather than retrospectively, as were many comparable studies, and therefore its conclusions regarding experiences during the first weeks in prison may be regarded as robust. This study suggests that hyperarousal symptoms and increased anger/irritability were comparable to non-incarcerated women, but that flashbacks, vivid memories, nightmares, and externalizing coping behaviors were elevated among the women in prison. Knowledge of population-specific symptom elevations is important for effective treatment planning within the unique environment of prison.

Elevated rates of certain trauma symptoms suggest that trauma-focused treatment is indicated for many new inmates. Contemporary psychotherapy offers several evidence-based treatment modalities for addressing traumatic symptoms effectively and efficiently (Foa, Keane, Friedman, & Cohen, 2010). There is evidence that such treatments can be

applied in prison settings and can also address the common comorbidity of substance abuse (Zlotnick, Najavits, Rohsenow, & Johnson, 2003). Furthermore, there is evidence that targeted treatment of posttraumatic symptoms in prison can be conducted in a group format, reducing financial burden on the institution (Bradley & Follingstad, 2003). The rates of trauma symptoms observed among this study's first-time inmates suggest that targeted treatment early in the prison experience may be appropriate, as many of the inmates arrive at the gates already exhibiting problems, and that such treatment may be effective both in terms of health care and in terms of cost.

Rates of institutional violence in this study were substantial, but still lower than some of the higher estimates from existing literature. This outcome may be attributable to the fact that this sample was composed entirely of first-time inmates who experienced and perpetrated less violence than the repeatedly incarcerated inmates in other samples. It may suggest that the particular prison (Oregon's only women's prison) used as the setting for this study is particularly well-managed and safe relative to other women's prisons. The outcome may also be due to response bias on the part of participants, who may have perceived social or institutional pressure to deny instances of violence despite the researchers' efforts to protect confidentiality and encourage forthright reporting. Nonetheless, the confidential self-report data collected were probably more trustworthy than official disciplinary data from the institution would have been, given that much prison violence is never reported to authorities.

It is particularly interesting that slightly over half of the inmates reporting victimization did not report perpetrating violence, but nearly all inmates who reported perpetrating violence also reported being victimized. This suggests that inmates who are

purely violent towards others, without also being targeted with violence at least sometimes, are rare. Contemporary media often stereotype inmates as purely predatory, but the results of this study instead paint a picture of a population where many inmates are simultaneously both victim and perpetrator. Given the focus on females in this study, it is unclear whether this is a gendered pattern of violence or characteristic of both male and female inmates. This nuanced view of prison life should be kept in mind by those who make decisions regarding prison management and correctional health care, as well as by those in the general population who have not personally experienced prison life.

Contrary to much of the existing research on “cycles of violence,” the four TSI-2 scales analyzed in this study were not significantly predictive of violence victimization or perpetration during the first year in prison. Although this may be due to limitations of the research design and data collection process, this study has sufficient strengths that the conclusion is fairly strong. Although rates of violence and trauma symptoms in this study constitute real problems for the prison, it is a hopeful sign that those inmates displaying higher levels of trauma symptoms were not at increased risk for the particular bad outcomes tracked in this study. It is possible that inmates learn quickly to mask their trauma symptoms lest they be seen as vulnerable, or lest they become violent and be punished. It is possible that trauma symptoms are common enough in prison that they are not viewed by other inmates as remarkable, or that some trauma symptoms (e.g., hyperarousal) may even be adaptive in an environment that contains an elevated level of legitimate threats. Finally, it is possible that the experience of incarceration itself exerts a more powerful influence over inmates’ behavior than do experiences that occurred before incarceration, and that rates of trauma responses are thereby homogenized during the

course of the first year. In any case, the four TSI-2 scales examined represent only a portion of the total array of trauma symptoms, and further investigation is needed before the theory of “cycles of violence” can be ruled out with any certainty regarding prison inmates.

Strengths and Limitations of Current Study

This study’s primary strengths are its longitudinal design, recruitment procedures, and the lengthy duration of its follow-up period. The prospective, longitudinal design allows for robust inferences about causality, as opposed to more limited research designs (e.g., retrospective and cross-sectional) in much of the existing literature, and also results in a sample that is more uniform in its prior experiences. The Oregon Department of Corrections’ cooperation allowed for a high degree of inmate privacy when completing measures, which increases the chances of honest self-report. Furthermore, even self-report measures of prison violence without such stringent privacy controls typically yield higher rates than data from institutional discipline, which would have been the alternative source of such data. The full measure completion of 82 out of the original 150 participants is encouraging given the chaotic, transitory, and at times antisocial characteristics of prison life and culture. When demographic and TSI-2 scale variables were compared between completers and noncompleters, only sentence length was significantly different; inmates with longer sentences were significantly more likely to complete the study. This indicates that the impact of attrition may have been minimal, but poses the question about the adjustment of inmates with shorter sentences.

This study included the newly redesigned TSI-2, which is based upon the latest research into trauma symptoms. The researchers successfully recruited participants within

their first weeks of prison, despite institutional challenges to accessing prisoners quickly upon reception, which is a significant improvement over the retrospective designs common in the prison violence literature and results in a much more homogenous sample with regard to prior incarceration history. For the period of study recruitment, nearly all eligible inmates on intake status were offered the chance to participate, resulting in recruitment that was more comprehensive than the limited sampling in many other studies. Finally, in most respects, the sample is demographically representative of the female inmate population in Oregon.

This study also contained several limitations. Although 82 out of 150 inmates completing all measures may be encouraging by the standards of correctional research and there were few differences on demographic and TSI-2 variables, it still represents a sizeable attrition rate, and there were significant differences in the sentence lengths of completers versus noncompleters. Sample size and associated statistical power limited the number of IVs to four of the TSI-2's 12 clinical scales. Interpretation of the meaning of PVI scores is complicated by the fact that they do not represent simple counts of violence incidents during the year. The use of self-report instruments entails typical challenges related to recall and response style, although the estimates of violence rates are still likely more accurate than data from other sources (e.g., disciplinary records) would have been. This sample was not particularly racially/ethnically diverse, and although that may not greatly limit generalizability of findings within Oregon, it does limit generalizability to more diverse prison populations. Although only first-time prison inmates were included in this sample, researchers did not measure or control for the amount of experience in county or city jails. Finally, TSI-2 answers may have been

confounded by the often-traumatic experience of first-time incarceration and by their personalities (e.g., more temperamentally aggressive individuals endorsing more items from the Anger scale).

Directions of Future Study

This study serves as a firm but circumscribed foundation for further investigation into the areas of inmate trauma histories and adjustment to prison. Future research addressing the same hypotheses as this study could employ more stringent research design to several of the limitations addressed previously, and in particular controlling for prior jail experience. Although the heterogeneity of prior jail experience would present a substantial challenge for both research design and analysis, successfully controlling for this variable would increase the remaining homogeneity of the sample and therefore the robustness of conclusions. Sampling from prisons in other states would lead to conclusions that are more broadly generalizable, especially by increasing the percentage of participants belonging to minority racial groups that are typically more heavily represented than in Oregon's prison system. Given that participants with shorter sentences were more likely to drop out of the study, future researchers could attempt to minimize this trend. These modifications to the current study design would lead to more robust inferences and more completely address the hypotheses I tested.

Future research could broaden the concept of prison adjustment to include social and emotional variables, as suggested by recent work by Van Tongeren & Klebe (2010), and could also examine a broader array of TSI-2 scales than the four selected for analysis in this study. The broader study from which this dissertation draws data includes information to accomplish the latter goal. Factor-level TSI-2 scoring, which was not yet

available at the time of this dissertation's analysis, would be an intriguing way to analyze the entire TSI-2 within the constraints of a sample size that only allows for four predictor variables.

Future research could also broaden the hypotheses to include the experiences of female inmates with prior prison experience, as well as male inmates both with and without prior prison experience. The Women's Adjustment to Prison project, of which this study is a part, is currently being expanded in these directions as part of the Personality and Adjustment to Prison project. The eventual testing of similar hypotheses using these samples will broaden the field's understanding of the fundamental challenges of adjustment to prison, especially for those inmates who arrive at the gates already experiencing symptoms of prior trauma.

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