Histories of Childhood Victimization and Subsequent Mental Health Problems, Substance Use, and Sexual Victimization for a Sample of Incarcerated Women in the US

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Abstract

Women are entering US prisons at nearly double the rate of men and are the fastest growing prison population. Current extant literature focuses on the prevalence of the incarceration of women, but few studies exist that emphasize the different trajectories to prison. For example, women prisoners have greater experiences of prior victimization, more reports of mental illness, and higher rates of illicit substance use. The purpose of this study was to understand the prevalence of childhood victimization and its association with adult mental health problems, substance abuse disorders, and further sexual victimization. The research team interviewed a random sample of 125 women prisoners soon to release from prison to gather information on their childhood physical and sexual victimization, mental health and substance abuse problems as an adult, and sexual victimization in the year preceding incarceration. Results indicate that women prisoners in this sample who were both physically and sexually victimized as a child were more likely to be hospitalized as an adult for a psychological or emotional problem. Women who were sexually victimized or both physically and sexually victimized were more likely to attempt suicide. Women who experienced physical victimization as children and women who were both physically and sexually victimized were more likely to have a substance use disorder and women who were sexually abused as children or both physically and sexually victimized were more likely to be sexually abused in the year preceding prison. This article ends with a discussion about prisons' role in providing treatment for women prisoners and basing this treatment on women's trajectories to prison, which disproportionately includes childhood victimization and subsequent mental health and substance use problems.

Keywords

women offenders; prisoners; victimization; substance abuse; mental health

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1. Introduction

The era of mass incarceration began in the United States approximately 40 years ago. Consequently, the US has the highest incarceration rates and criminal justice involvement rates in the world (Guerino, Harrison, & Sabol, 2011; International Centre for Prison Studies, 2007). The escalation of prisoners since 1971 is staggering. Approximately 198,000 people were incarcerated in US prisons in 1971compared to approximately 1.6 million US persons in 2010 (Guerino et al., 2011). The year 2010 is the first time since the US embarked on the experiment in mass incarceration that the number of state prisoners decreased. Yet, nearly 1 in 100 adult residents in the US currently reside in either prison or jail.

Women comprise the fastest growing population in US prisons. In 1971, when the War on Drugs is thought to have started, there were 6,329 women incarcerated in State or Federal prisons. This number increased to 112,797 women in 2010 (Guerino et al., 2011; Pew Center on the States, 2008; West & Sabol, 2009). While clearly the vast majority of people incarcerated are men, women constitute approximately 7% of all incarcerated people in the US (Guerino et al., 2011; Talvi, 2007); the rate of increase among women is almost double than that of men (Drapalski, Youman, Stuewig, & Tangney, 2009; Sabol, Minton, & Harrison, 2007).The extreme increase in women incarceration rates has been largely attributed to: 1) the War on Drugs (a shift in policy in the US to criminalization of illicit substance use and distribution), 2) mandatory minimum sentencing (removing judicial discretion for certain offenses), and 3) lack of correctional programming designed to meet incarcerated women's needs (Bloom, Owen, & Covington, 2004; Gaskins, 2004; Hall, Prendergast, Wellisch, Patten, & Cau, 2004; Mauer, Potler, & Wolf, 1999; Messina, Burdon, & Prendergast, 2006; Petersilia, 2009; Prothrow-Stith & Spivak, 2005).

In addition to women comprising the fastest growing prison population, women prisoners' needs are different than men's (Messina, Burdon, Hagopian, & Prendergast, 2006). Current extant literature focuses on the prevalence of the incarceration of women, but few recent studies exist that emphasize the different trajectories to prison and re-incarceration for men and women. For example, women prisoners have greater experiences of prior victimization, more reports of mental illnesses such as serious depression, and high rates of involvement with illicit substance use – all factors that are seemingly connected to each other and may contribute to risks to offend and re-offend.

There is a clear connection between mental health problems and drug use for women prisoners. Approximately 73% of women prisoners have a mental health problem (James & Glaze, 2006) and approximately 60% of women prisoners used drugs in the one month before the offense that led to their incarceration (Mumola & Karberg, 2007). There is also a high prevalence of substance use and mental health problems among male prisoners, albeit at lower rates. Approximately 55% of male prisoners report having a mental health problem and approximately 56% of male prisoners report having used drugs in the one month before the offense that led to their incarceration. Approximately 75% of women prisoners who report mental health problems also meet the criteria for substance dependence or substance abuse (James & Glaze, 2006). Many women prisoners who experience mental health and/or substance use problems are victims of childhood victimization (Islam-Zwart & Vik, 2004; Salisbury & Van Voorhis, 2009; Widom & Ames, 1994; Windle, Windle, Scheidt, & Miller, 1995). Thus, it is important to understand the associations between different types of childhood victimization, such as physical abuse and sexual abuse, and subsequent mental health/substance abuse problems in order to treat women prisoners accordingly by addressing their trauma. A better understanding of the specific types of victimization and subsequent mental health and behavioral problems for women prisoners will allow for more

targeted and trauma focused interventions that could promote positive post-release outcomes of women prisoners and decrease recidivism rates.

Approximately a decade ago, some researchers reported the prevalence of physical and sexual victimization among incarcerated women (Browne, Miller, & Maguin, 1999; Warren, Hurt, Loper, Bale, Friend, & Chauhan, 2002) but little victimization research has been done since then. Present day researchers urge there is a need to better understand the prevalence of childhood victimization in women offenders, and the ability of victimization to predict mental health and substance abuse problems for these same women. These researchers argue this inquiry is an important first step towards being more responsive to women prisoners' needs (Bergseth, Jens, Bergeron-Vigesaa, & McDonald, 2011). This study responds to that call. We sought to understand childhood physical and sexual victimization among women prisoners, and assess the association between previous victimization and adult mental health problems, adult sexual victimization, and substance abuse.

2. Background

2.1. Reasons for Increases in the Incarceration of Women

The War on Drugs – a term first used by President Richard Nixon in 1971 – led to the criminalization of illicit substance use and the de-emphasis of rehabilitation for substance addictions (Moore & Elkavich, 2008). The War on Drugs severely influences incarceration rates for both men and women. In 2008, 500,000 people were imprisoned for a drug crime. The War on Drugs has been particularly damaging for women. In 1971, when the War on Drugs started, there were 6,329 women incarcerated in State or Federal prisons. This number increased to 112,797 women in 2010 (Guerino et al., 2011). Many consider the steep increase of women prisoners to be attributed to increases in illicit drug use among women and an increase in drug-related convictions (Covington, 1998; Green, Miranda, Daroowalla, & Siddique, 2005). National trends indicate that almost 30% of women offenders are arrested for drug related crimes and an additional 33% report they were using drugs or obtaining drugs when arrested (Guerino et al., 2011; Hall et al., 2004; Messina et al., 2006).

Mandatory minimum sentencing is generally considered one component of the War on Drugs (Gaskins, 2004). Mandatory sentencing laws limit judicial discretion because people convicted of certain crimes, including many drug crimes, are subjected to a pre-determined sentencing grid often established by state legislatures. A consequence of mandatory minimum sentencing is that judges are often unable to consider mitigating circumstances (e.g., a woman's relationship to a co-defendant) as a contributor to her offense. In the past a judge's consideration of mitigating circumstances may have prevented more women from going to prison because they were minimally involved in drug crimes (e.g., they knew about drug sales in their home but were not actively involved in the sales). With the introduction of mandatory sentences women have, "found themselves incarcerated and subject to draconian sentences because the men in their lives persuade, force, or trick them into carrying drugs," (Gaskins, 2004, pg. 1).

A general lack of programming designed to meet women-specific needs has been argued to also contribute to the recidivism rates of formerly incarcerated women (Petersilia, 2009; Travis, 2005; von Wormer & Kaplan, 2009). Historically, services for incarcerated women have been based on the needs of men, despite women prisoners having diverse and unique problems, such as more experiences with trauma (i.e., prior victimization), substance abuse, and mental health problems (Drapalski et al., 2009; Green et al., 2005; Teplin, Abram, & McClelland, 1996; Warren et al., 2003). Research indicates women prisoners have higher exposure to trauma than men prisoners (Battle, Zlotnick, Najavits, Gutierrez, & Winsor,

2003) and have higher rates of both mental health disorders and substance abuse problems (Green et al., 2005; Jordan, Federman, Burns, Schlenger, Fairbank, & Caddell, 2002; Messina & Grella, 2006; Teplin et al, 1996). Despite these higher rates for women prisoners, very few correctional programs and prisoner reentry programs address histories of trauma and mental health problems (Bergseth et al., 2011; Calhoun, Messina, Cartier, & Torres, 2010; Petersilia, 2009; von Wormer & Kaplan, 2009). For example, Koons, Burrow, Morash, and Bynum (1997) found that just 13% of correctional programs for women target physical and/or sexual abuse, and mental health was targeted in just 7% of the programs.

Very few interventions exist that target unique needs of women prisoners and even fewer programs are trauma-informed (c.f. Messina, Grella, Cartier, & Torress, 2010; Zlotnick, Johnson, & Najavits, 2009). Limited gender-specific programming in prisons has continued despite the successful efforts over the past decade to develop and implement gender-responsive criminogenic risk and needs assessments (c.f. Van Voorhis, Wright, Salisbury, & Bauman, 2010). Any number of factors could be contributing to the lack of gender-specific programming. One highly likely factor is that we still understand very little about how women and men prisoners differ in terms of programming and treatment needs that will lead to positive post-release outcomes and reduce re-incarceration rates. Extant literature on PTSD and trauma exposure indicates that the type of trauma and victimization experiences must be appropriately matched with the type of therapeutic intervention. This requisite of matching trauma and victimization experiences with intervention proscriptions should operate no differently in a women prisoner population than the general population. However, we know very little about the relationship between specific types of victimization histories of women prisoners and other problematic behaviors (e.g., substance abuse) that are overrepresented in incarcerated populations. This study contributes to the literature by offering a recent snapshot of prior victimization experiences and substance use and mental health problems on a random sample of women prisoners. It is only after we understand the prevalence and associations of victimization experiences of women prisoners that we can confidently suggest programming proscriptions for this population. Therefore, this paper is an important step in the continued development of targeted, trauma-informed, interventions for current and former women prisoners.

2.2. Victimization

In addition to having higher exposure to trauma and higher rates of mental health and substance use problems, women prisoners have more extensive histories of physical and sexual victimization than male prisoners (Drapalski et al., 2009). Previous research indicates up to 78% of incarcerated women reported being physically or sexually abused prior to prison (McDaniels & Belknap, 2008). These rates are significantly higher than the proportion of male prisoners who report victimization prior to prison, which is approximately 15% (Drapalski et al., 2009; Wolff, Shi, & Siegel, 2009). Previous sexual abuse appears to be more common than previous physical abuse for women prisoners as approximately 55% of women prisoners report childhood sexual victimization and approximately 47% of women prisoners report childhood physical victimization (Browne et al., 1999; Islam-Zwart & Vik, 2004; Warren et al., 2002). Not only do women prisoners have victimization rates at higher levels than men prisoners, they also have more extensive histories of victimization than the general non-incarcerated women population in the US (Islam-Zwart & Vik, 2004; Messina et al., 2006; Wolff, Blitz, & Shi, 2007).

Much of the existing theoretical and program development research on prisoner populations has been conducted using samples of male current and former prisoners or male adolescents at risk of imprisonment. Furthermore, because men represent the overwhelming majority of the state and federal prison population in the US, characteristics related to the life experiences of prisoners are predominately described in terms of the male experience.

However, in reality men and women's pathways to prison may be very different. Prior research demonstrates that trauma exposure may lead to exacerbated substance use and mental health problems (Garland, Pettus-Davis, & Howard, 2012; Jordan et al, 2002). The fact that women prisoners report more experiences of prior victimization than men prisoners is just one example of why teasing out the differences between men and women prisoners is so critical for the most effective correctional intervention development.

2.3. Effects of Childhood Victimization

Researchers have found childhood victimization to be associated with substance use problems, criminal behavior, and continued victimization throughout the victimized person's life. Women victims of childhood sexual abuse or severe physical abuse by parents or guardians are at higher risk for substance abuse and other addictions as both teenagers and adults than women who did not suffer this abuse (Browne et al., 1999; Salisbury & Van Voorhis, 2009; Windle et al., 1995). Widom and Ames (1994) found that female children who were physically abused were more likely to be arrested as adolescents than female children who were not abused, and sexually abused female children were more likely to be arrested as an adult for prostitution than non-sexually abused children. Furthermore, researchers have consistently found that girls who are sexually abused are more likely to be victims of domestic violence as adults (Beitchman, Zucker, Hood, DaCosta, Akman, & Cassavia, 1992; Browne et al., 1999; Green et al., 2005).

To further understand the relationship between childhood abuse experiences and criminal justice involvement, Salisbury and Van Voorhis (2009) developed a model connecting childhood victimization, adult mental health problems, and criminal offending that results in correctional supervision in the community (i.e., probation). The meditational model asserts that childhood victimization engenders mental health problems, which leads to self-medication behaviors using illegal substances, leading to arrest and conviction for drug related crimes. Salisbury and Van Voorhis (2009) provide important current information about a sample of women who commit offenses minor enough to only require community correctional supervision. We test a similar model using a sample of women with criminal histories severe enough to warrant removal from the community and incarceration in a state prison. We sought to further understand the relationship between childhood victimization and mental health problems and substance use in an incarcerated population. The purpose of this study is twofold: 1) to assess the relationships between childhood victimization, substance abuse, mental health problems, and adult sexual victimization with women prisoners soon to be released from prison and 2) to evaluate whether childhood physical abuse and childhood sexual abuse lead to outcomes as adults such as hospitalization for a psychological or emotional problem, suicidal ideations, substance use, or further sexual victimization. As described earlier, a deeper understanding of the specific victimization histories of women prisoners and the relationship of those experiences with other problematic behaviors overrepresented in correctional populations is critically important to the development of targeted, efficient, and effective interventions. We used a sample of incarcerated women in the US to investigate the following research questions:

1. Is childhood victimization associated with mental health problems in a sample of incarcerated women?

   a. Are there differences between childhood physical abuse and childhood sexual abuse in the ability to predict adult mental health problems?

2. Is childhood victimization associated with substance use as an adult in a sample of incarcerated women?

> **a.** Are there differences between childhood physical abuse and childhood sexual abuse in their ability to predict adult substance use problems?

3. Is childhood victimization associated with being victimized as an adult in a sample of incarcerated women?

> **a.** Are there differences between childhood physical abuse and childhood sexual abuse in their ability to predict sexual victimization as an adult?

4. What is the relationship between mental health problems and substance use in a sample of incarcerated women?

3. Methods

3.1. Participants

A random sample of women prisoners ($n = 125$) was obtained from two state prisons located in North Carolina. All participants were enrolled on a voluntary basis. One of the prisons is a maximum, medium, and minimum level facility that houses over 1,300 prisoners, and the other prison is a minimum security prison that houses approximately 200 prisoners. One hundred and twenty-five of the 150 prisoners invited to participate in the study agreed to do so, yielding an 83% positive response rate. There was an 80% response rate from women at the maximum/medium/minimum security prison (N = 75) and an 85% rate from women at the minimum security prison (N = 50).

The demographic characteristics of the sample are provided in Table 1. The average age for the sample was 34.3 (SD = 9.94) with a range of 19–62. Approximately 53% of the sample was Caucasian, 43% African American, and 4% were Hispanic. Regarding the victimization variables, 32.5% (N = 40) of the women were both physically and sexually abused as a child, 20.3% (N = 25) were physically abused but not sexually abused as a child, 11.4% (N = 14) were sexually abused but not physically abused as a child, 35.8% (N = 44) were not abused as a child, and 27.9% (N = 34) were sexually abused the year preceding incarceration. The majority of women had substance use problems; 62.1% (N = 77) had a substance abuse disorder according to the Substance Abuse Module and 52.8% (N = 65) were treated for drug abuse (52.8%). Finally, 27.6% (N = 34) of the women were hospitalized as an adult for a psychological or emotional problem and 25.8% (N = 32) had attempted suicide.

3.2. Procedures

The sample was randomly selected using a census of all eligible women from both prisons scheduled to release within 30 to 120 days of the data collection period. There were 630 potential participants from the two prisons as identified by prison queries. After random sampling, there was one list of eligible women for inmates from the maximum/medium/minimum security prison and one list for inmates from the minimum security prison, totaling 229 participants as seen on Figure 1. To be eligible, the prisoner had to be at least 18 years old; English-speaking; and cognitively functioning to the degree that they were able to provide informed consent, and indicate that they understood the nature of the study and what being a study participant entailed.

The researchers randomly selected eligible participants from the sampling frame, which contained women randomly selected from an electronic list provided by the North Carolina Department of Correction. There were 157 eligible women from the maximum/medium/minimum security prison and 72 eligible women from the minimum security prison on the sampling frame. Employees from both of the prisons then had a random – list formulated by the research team – of eligible women from their particular prison. The prison employee and

one of the researchers randomly selected a name by randomly pointing to the list and then called for her over the Public Address system. The researcher then went over the recruitment script and discussed the consent form if the woman remained interested. This process was repeated after each interview or after the woman declined participation. See Figure 1 for a description of the sampling procedures. There were no significant differences in women inmates across the two prisons on the following groups of variables: victimization, substance abuse, mental health, and demographics. Data collection occurred in the two prisons from December 6th 2010 – December 10th 2010, March 7th 2011 – March 11th 2011, and May 9th 2011 – May 13th 2011. All procedures were reviewed and approved by the Florida State University and North Carolina Department of Correction Human Subject Review Boards.

The interviews took approximately 45 minutes to 1.5 hours to complete. Five members of the research team conducted the interviews: two have a PhD in social work (one woman and one man), one has a PhD in Community Psychology (man), and two have Master of Social Work degrees (2 women). All of the interviewers have either clinical experience working with women and/or trauma or experience interviewing research participants in prisons. All participants were interviewed by a research team member who read out loud the measurements and wrote down the participant responses.

3.3. Measures

Victimization, mental health problems, and substance use were measured with six standardized interviews.

3.3.1. Substance Use Problems—The Substance Abuse Module (SAM) (Cottler, Robins, & Helzer, 1989) is a 38-item measure that assesses DSM-IV diagnostic criteria for current and lifetime substance use disorders. The researchers' administered the entire scale and used the following 3 items to determine how many times a participant received treatment for substance related problems: 1) How many times in the 12 months prior to prison have you been treated for substance abuse? 2) How many of these treatments for detox only? and 3) How many times have you been treated in an outpatient settings (e.g. counseling, NA/AA, or drug use) in your lifetime and in the 12 months prior to prison? Thus, there are two variables in this study assessing substance use problems: whether the participant met the criteria for a substance use disorder (dichotomous variable) and how many times the participant has been treated for substance abuse problems (continuous variable).

3.3.2. Mental Health Problems—History of treatment for psychiatric problems was obtained from participant responses to the Addiction Severity Index (ASI) (McLellan et al., 1992). The participants completed the psychiatric problems section of the ASI by being asked whether they have experienced symptoms of the following in the past 30 days or lifetime: depression, anxiety, hallucinations, suicidal thoughts, and prescribed psychiatric medications. Participants were also asked if they had ever attempted suicide, and if so, the number of times along with how many times they have been hospitalized for a psychological or emotional problem. For the analyses in this study, mental health problems were defined by whether the participant has been hospitalized as an adult for mental health problems and whether the participant has ever attempted suicide. Both of these variables are dichotomous.

3.3.3. Victimization—Histories of childhood physical and sexual abuse were assessed using the *Childhood Trauma Questionnaire* (CTQ). The CTQ is a 28-item measure that provides screenings for histories of abuse (Bernstein, Fink, Handelsman, & Foot, 1994). The participants were asked if they ever experienced the question being asked on a five point Likert scale. The researchers administered a 20-item version of the CTQ and, for this

particular study, the participant was considered to have been sexually victimized as a child if they answered affirmatively to any of the following from the CTQ: 1) I believe I was sexually abused, 2) Someone molested me, or 3) Someone threatened to hurt me or tell lies about me unless I did something sexual to them. Responses were corroborated with the Experiences of Sexual Victimization survey. All of the women who reported being sexually victimized as a child in the CTQ also reported being victimized in the Experiences of Sexual Victimization survey. Whether the participant was sexual victimized as a child is a dichotomous variable.

The participant was considered to have been victimized physically as a child if they responded affirmatively to the following item from the CTQ: When I was growing up, people in my family hit me so hard that it left me with bruises or marks. This was corroborated with results from the National Violence Against Women Survey. All of the women who reported being physically victimized as a child on the CTQ also reported physical victimization as a child on the National Violence Against Women Survey. Whether the participant was physically victimized as a child is a dichotomous variable.

The National Violence Against Women Survey (Tjaden & Thoennes, 2000) – which measures lifetime histories of both physical and sexual victimization – was used as validation for the CTQ in determining whether a participant was physically abused as a child. The National Violence Against Women Survey is a 51-item scale that measures lifetime physical and sexual abuse. While there are no known studies validating the National Violence Against Women Survey, it is commonly used to measure the prevalence of physical and sexual abuse against women – both as children and adults (Tjaden & Thoennes, 2000).

The Experiences of Sexual Victimization (ESV) survey is a 12-item yes-no questionnaire that assesses previous experiences of sexual victimization (Koss & Oros, 1982).The researchers' administered the entire scale and used four items for this study to help determine if the participant has been sexually abused. If the participant responded affirmatively to any of the following items, and it corroborated with results from the CTQ, than the participant was considered to have been sexually abused as a child: 1) Had sexual intercourse with somebody when you did not want to because they threatened to use physical force if you did not cooperate, 2) Had sexual intercourse with somebody when you did not want to because they used some degree of physical force, 3) Been in a situation where somebody obtained sexual acts with you such as anal or oral intercourse when you did not want to by using threats or physical force, and 4) Have ever been raped.

The Abuse Behavior Inventory (ABI) is a 29-item Likert scale measure of physical and psychological intimate partner abuse in the prior year (Zinc, Klesges, Levin, & Putnam, 2007). For this study, the researchers measured physical and psychological intimate partner abuse and abuse from family members for the year preceding incarceration. The researchers administered the entire scale. The participant was considered to have been sexually abused by a family member or an intimate partner if they answered affirmatively to the specific questions regarding sexual abuse, which were whether the family member or intimate partner (2 different questions) physically forced the participant to have sex or physically attacked the sexually parts of the participant's body. Whether the participant was sexually victimized by a family member or intimate partner in the year before incarceration is a dichotomous variable in these analyses.

3.4. Data Analysis

We used binary logistic regression models to assess the relationship between victimization, mental health, and substance use for this sample. Binary logistic regression is a nonlinear

regression model that allows for the assessment of the relationship between multiple predictor variables and a discrete outcome variable (Hosmer & Lemeshow, 2000; Kutner, Nachtshein, Neter, & Li, 2005). The mean response function is the probability that the observed outcome variable equals the given levels of predictor variables (Hosmer & Lemeshow, 2000; Kutner, Nachtshein, Neter, & Li, 2005). The logistic regression produces an odds ratio. The odds ratios are interpretable in terms of the probabilities of the dependent variable (e.g., hospitalization for a mental health problem) outcome being equal to 1 when all other variables in the model are held equal. The data in this study fit the assumptions of the logistic regression that the outcome variables were binary and the sample was independently and randomly selected.

3.4.1. Model Specification—Four logistic models were created. The sample size for this study required the use of parsimonious regression models. As such, variables were selected based on empirically supported risk factors associated with problematic mental and behavioral outcomes and the researchers' theory about which of these factors would produce the most variation in outcomes. The predictor variables described below were considered for each of the four models. The dependent variable differed for each model in order to explore the separate research questions.

<u>Age:</u> Research on desistance, persistence, and the developmental trajectories associated with criminal justice involvement indicates that age is associated with continued criminal justice involvement and chronic antisocial behaviors (c.f., Bartusch, Jeglum, Moffitt, & Silva, 1997; Gottfredson & Hirschi, 1990; Moffitt, Caspi, Dickinson, Silva, & Stantond, 1996). Age was coded as a continuous variable in all of the regression models.

<u>Race:</u> African Americans are disproportionately represented in prisons (Cullent & Sundt, 2000; Guerino et al., 2011) and African Americans have higher rates of recidivism to criminal justice involvement when compared to their white counterparts (Langan & Levin, 2002). Evidence suggests this overrepresentation is partially due to African Americans receiving more severe sentences for the similar crimes committed by their counterparts (Hurwitz & Peffley, 2010). Considering race is correlated with problematic criminal justice involvement, and because the relationship between race and both mental health and behavioral outcomes is underrepresented in empirical studies, race was included in each model. Because 96% of the sample constituted African American women or white women, and to enable its use as a predictor variable in the regression models, race was coded as a dichotomous variable – the participant was considered a minority or not a minority.

<u>Sexual victimization:</u> This variable was included to examine the relationship between sexual victimization and the dependent outcome when sexual victimization was reported but no other types of victimization were reported. Prior research indicates some variation in mental health outcomes associated with lifetime trauma dependent on the type of trauma exposure (Afifi, Enns, Cox, Asmundson, Stein, & Sareen, 2008; Joiner, Sachs-Ericsson, Wingate, Brown, Anestis, & Selby, 2006). Sexual victimization was coded as a dichotomous variable – whether the participant was sexually victimized as a child and not physically victimized.

<u>Physical victimization:</u> Using the same rationale as that described for the sexual victimization variable, experiences of physical victimization in the absence of reported sexual victimization was included in the model (Lansford, Dodge, Pettit, & Bates, 2010). Physical victimization was coded as a dichotomous variable – whether the participant was physically victimized as a child and not sexually victimized.

Physical and sexual victimization: A variable was created to reflect those instances in which participants reported histories of both physical and sexual victimization. Multiple experiences and types of victimization have been found to be correlated with trauma related mental and behavioral health outcomes (Becker, Stuewig, & McCloskey, 2010). Physical and sexual victimization was coded as a dichotomous variable – whether the participant was both physically and sexually victimized as a child.

Not victimized: This variable was included to assess relative outcomes for those participants who did not report histories of childhood victimization. Not victimized was coded as a dichotomous variable.

Residential drug treatment: Residential drug treatment was used as a proxy variable to indicate the history of substance addiction prior to incarceration. Residential drug treatment was coded as a continuous variable – the amount of times the participant reported attending residential drug treatment. We looked at residential drug treatment as a continuous variable in order to assess the influence of substance use severity – defined by times admitted to a residential drug treatment program – on the four different dependent variables.

Predictor variables were included in a forced entry approach without any forward or backward stepwise selection processes. Using a forced entry approach allowed for theoretically informed regression models to be retained (Field, 2009). For each model we examined the following: case to predictor variable ratio, accuracy rate differences between a model including the outliers and a model excluding the outliers to determine which model to analyze, multicollinearity by examining the Variance Inflation Factors, model fit, relationships between predictor variables and the dependent variable, and classification accuracy rates. The final models were specified as follows:

Model 1 included age, race, four childhood victimization variables, and residential drug treatment as the predictor variables and hospitalization as an adult for psychological or emotional problems as the dependent variable. Model 2 included the same predictor variables as Model 1 with the dependent variable defined as whether the participant had attempted suicide. Model 3 included age, race, and the same four childhood victimization variables as the predictor variables. The dependent variable was whether the participant was assessed has having a substance abuse disorder. Model 4 included the same predictor variables as Model 3 with whether the participant was sexually abused by an intimate partner or family member the year preceding incarceration as the dependent variable.

Table 2 shows the percentages and means for each predictor variable hypothesized to influence the outcome variables. Differences between samples for categorical variables were evaluated using chi-square tests. Differences in means between samples for continuous variables were evaluated using t-tests. In those cases in which the cell count was less than five, we used a Fisher's exact test instead of chi-square.

4. Results

4.1 Predicting Adult Mental Health Problems

The first research question for this study asks whether childhood victimization is associated with mental health problems in a sample of incarcerated women, and if so, whether there are differences between childhood physical victimization and childhood sexual victimization in their ability to predict mental health problems. To ensure all childhood victimization predictor variables are mutually exclusive, we included the follow four predictor variables in the first four logistic regression models: Whether the participant was physically and sexually abused as a child, whether the participant was sexually abused as a child but not physically

abuse, whether the participant was physically abuse as a child but not sexually abused, and whether the participant was not physically or sexually abused as a child.

The first regression model has seven predictor variables: the four childhood victimization variables, race, age, and how many times the participant has been treated for drug problems. The dependent variable is psychiatric hospitalization. The 121 cases available for the analysis – four cases had missing data and were excluded from the analysis – satisfies the minimum case to predictor variable ratio (17:1) for logistic regression (Hosmer & Lemeshow, 2000).

Outliers were detected by using the criteria of studentized residuals greater than +/− 2.0 standardized deviations away from the mean (Hosmer & Lemeshow, 2000). Four outliers were identified in the first regression model. To determine whether to include the outliers in the analysis or not, we compared the baseline accuracy rate to the accuracy rate for a model excluding outliers. Prior to the removal of outliers, the accuracy rate of the logistic regression model was 76.9%. After removing the four outliers, the accuracy rate of the logistic regression model was also 76.9%. Because the logistic regression omitting the outliers did not have a classification accuracy rate more than two percent higher than the logistic regression with all the cases, the logistic regression model with the outliers was interpreted (Hair, Black, Babin, Anderson, & Tatham, 2005).

According to Hosmer & Lemeshow (2000), multicollinearity in the logistic regression model is detected by examining the Variance Inflation Factors (VIF). A VIF around 10.0 indicates problems of multicollinearity. The VIFs for the variables in this analysis range from 1.051–1.294; multicollinearity is not a problem.

The presence of a relationship between the dependent variable and the combination of the predictor variables is based on the statistical significance for the model chi-square for the −2 log likelihood differences between the model with the predictor variables and the model without the predictor variables (Hosmer & Lemeshow, 2000). The probability of the model chi-square (13.700) was $p = .033$, so the null hypothesis that there is no difference between models is rejected, supporting the existence of a relationship between the predictor variables and the dependent variables.

We examined the relationships between the predictor variables and the dependent variable by analyzing the significance of the Wald test of the beta coefficient and the interpretation of the odds ratio. In this particular model, as indicated in Table 3 having experienced both physical victimization and sexual victimization as a child was the statistically significant predictor variable related to psychiatric hospitalization as an adult (OR = 3.99, $p = .012$). This indicates that women who were both physically and sexually victimized as children were close to four times more likely to be hospitalized as an adult than women who were not both physically and sexually abused.

Predictor variables can be characterized as useful predictors distinguishing participants who have been hospitalized for an emotional or psychological problem as an adult to those who have not if its classification accuracy rate is 25% higher than the accuracy obtained by chance alone (Hair et al., 2005). The proportion by chance accuracy rate was computed by calculating the proportion of cases in each group at step 0. The proportion in the "no" group was .736 and the proportion in the "yes" group was .264. The proportion of cases in each group are then summed and squared for a by chance accuracy rate of .609. The classification accuracy rate in step 1 is 76.9%, which is greater than a 25% improvement to the classification accuracy obtained by chance ($1.25 \times .609 = 76.1\%$). The criteria for classification accuracy are satisfied, suggesting the model is sufficiently accurate to be considered useful.

The second regression model assessed the influence of the same group of predictor variables as the first model on whether the participant had attempted suicide. The 122 cases for the analysis satisfies the minimum case to predictor variable ratio for logistic regression. Three cases were missing data and excluded from the analysis. There are 122 cases and 7 predictor variables, for a ratio of 17:1. Prior to the removal of the four outliers with studentized residuals greater than 2.0, the accuracy rate of the logistic regression model was 77.9%. After removing the four outliers, the accuracy rate of the logistic regression model was 83.1%. However, after removing the outliers the standard error for the predictor variable 'childhood physical victimization and not childhood sexual victimization' was well over 2.0, indicating potential numerical problems such as multicollinearity or categories of predictors having no cases or zero cells. Thus, the regression model including the four outliers was interpreted. There were no problems of multicollinearity in this regression model. The VIFs for the predictor variables ranged from 1.049–1.052.

This logistic regression model indicated there is a relationship between the dependent variable and the combination of predictor variables. The probability of the model chi-square (35.475) was $p < .001$, so the null hypothesis that there is no difference between the model with only a constant and the model with the predictor variables is rejected. As indicated in Table 3, women who were sexually victimized as a child but not physically victimized were approximately 7.7 times more likely to have attempted suicide than women who were not in this category (OR = 7.74, $p = .029$). Women who were both physically and sexually victimized as a child were close to 21.6 times more likely to have attempted suicide than women who were not both physically and sexually victimized as a child (OR = 21.56, $p < .001$). Additionally, all else being equal, a 1-unit increase in times treated for drug problems was associated with being approximately 24% more likely to have attempted suicide (OR = 1.241, $p = .021$).

Regarding classification accuracy, the proportion by chance accuracy rate for this model was .630. The classification accuracy rate in step 1 is 77.9%, which is just under a 25% improvement to the classification accuracy rate obtained by chance ($1.25 \times .630 = 78.7\%$). Thus, caution is warranted when interpreting these results from the second logistic regression model.

In this sample, childhood victimization is associated with mental health problems as an adult. Mental health problems are defined as whether the participant has been hospitalized for a psychological or emotional problem or whether the participant attempted suicide. Women who were both sexually and physically victimized as children were significantly more likely to be hospitalized for a mental health or emotional problem as an adult. Moreover, women who were sexually victimized as a child and women who were both physically and sexually victimized as a child were more likely to have attempted suicide at a statistically significant level. These models also address the fourth research question, which asks whether there is a relationship between mental health problems and substance abuse. There was a significant relationship between the number of times the participant attended drug treatment and whether she had attempted suicide, indicating a relationship between substance abuse and mental health.

4.2. Predicting Substance Abuse Problems

The second research question for this study asks whether childhood victimization is associated with substance use problems as an adult in a sample of incarcerated women, and if so, whether there are differences between childhood physical victimization and childhood sexual victimization in their ability to predict substance abuse problems. The third regression model assessed the influence of the following predictor variables on whether the participant has a substance abuse disorder: age, race, sexually victimized as a child but not

physically victimized, physically victimized as a child but not sexually victimized, both physically and sexually victimized as a child, and not physically or sexually victimized as a child.

The 123 cases for the analysis satisfies the minimum case to predictor variable ratio. Two cases had missing data and were excluded from the analysis. There are 123 cases and 6 predictor variables, for a ratio of 20.5:1. Prior to the removal of the two outliers with studentized residuals greater than 2.0, the accuracy rate of the logistic regression model was 69.9%. After removing the 2 outliers, the accuracy rate of the logistic regression model was 71.9%. Because the accuracy rate of the model without outliers did not exceed a two percent improvement, the logistic regression model including the two outliers was analyzed. There were no problems of multicollinearity in this regression model. The VIFs for the predictor variables ranged from 1.011–1.376.

This logistic regression model indicated there is a relationship between the dependent variable and the combination of predictor variables. The probability of the model chi-square (19.632) was $p = .001$. The null hypothesis that there is no difference between the model with only a constant and the model with the predictor variables is rejected. Regarding individual predictor variables, as indicated in Table 4 the statistically significant predictor variables were: age, race, physically victimized as a child but not sexually victimized, and both physically and sexually victimized as a child. All else being equal, a 1-unit increase in age is associated with being 4.5% less likely to have a substance abuse disorder (OR = .955, $p = .033$). Minority women in this sample were approximately 65% less likely to have a substance abuse disorder than white women (OR = .331, $p = .007$). Physically victimized as a child but not sexually victimized and being both physically and sexually victimized are the two victimization variables significantly associated with having a substance abuse disorder. Participants who were physically victimized as children but not sexually victimized were approximately 4.8 times more likely to have a substance abuse disorder than women who were not in this category (OR = 4.752, $p = .010$) and participants who were both physically and sexually victimized were approximately 3.2 times more likely to have a substance abuse disorder than women who were not both physically and sexually victimized (OR = 3.225, $p = .017$).

The proportion by chance accuracy rate for this model was .528. The classification accuracy rate in step 1 is 69.9%, which is better than a 25% improvement to the classification accuracy rate obtained by chance ($1.25 \times .528 = 66\%$). Thus, this binary logistic regression model was sufficiently accurate to be considered a useful model. In this sample, there is indeed a relationship between childhood victimization and adult substance use problems. More specifically, childhood physical victimization is associated with having a substance abuse disorder as an adult and participants who were both physically and sexually victimized as children are more likely to have a substance abuse disorder as an adult.

4.3. Predicting Sexual Abuse The Year Preceding Incarceration

The third research question for this study asks whether childhood victimization is associated with being victimized as an adult, and if so, whether there is a difference between childhood physical victimization and childhood sexual victimization in its ability to predict sexual victimization as an adult. The fourth regression model assessed the influence of the following predictor variables on whether the participant was sexually victimized by a family member or an intimate partner in the year preceding incarceration: age, race, sexually victimized as a child but not physically victimized, physically victimized as a child but not sexually victimized, both physically and sexually victimized as a child, and not physically or sexually victimized as a child.

The 122 cases for the analysis satisfies the minimum case to predictor variable ratio. Three cases were missing data and excluded from the analysis. There are 122 cases and 6 predictor variables, for a ratio of 20:1. Prior to the removal of the four outliers with studentized residuals greater than 2.0, the accuracy rate of the logistic regression model was 73.0%. After removing the four outliers, the accuracy rate of the logistic regression model was 77.1%. Because the accuracy rate of the model without the outliers exceeded a two percent improvement over the model including the outliers, the logistic regression model excluding the outliers was analyzed. Thus, the cases to predictor variables ratio became 19.6:1, which still satisfied the minimum ratio necessary for binary logistic regression. There were no problems of multicollinearity in this regression model. The VIFs for the predictor variables ranged from 1.008–1.369.

The logistic regression model indicated there is a relationship between the dependent variable and the combination of predictor variables. The probability of the model chi-square was $p < .001$. The null hypothesis that there is no difference between the model with only a constant and the model with the predictor variables is rejected. Regarding individual predictor variables, as indicated in Table 4 the statistically significant predictors were: sexually victimized as a child but not physically victimized and both physically and sexually victimized as a child. Participants who were sexually victimized as a child but not physically victimized were approximately 5.5 times more likely to be sexually victimized in the year preceding prison than women not in this category (OR = 5.496, $p = .043$). Participants who were both physically and sexually victimized as children were approximately 12.8 times more likely to be sexually victimized the year preceding prison than participants who were not both physically and sexually victimized as children (OR = 12.82, $p < .001$).

The proportion by chance accuracy rate for this model was .622. The classification accuracy rate in step 1 is 77.1%, which is just under a 25% improvement to the classification accuracy rate obtained by chance ($1.25 \times .622 = 78\%$). Thus, caution is warranted when interpreting these results from the second logistic regression model. In this sample, women sexually victimized as children and women both physically and sexually victimized as children were more likely to be sexually victimized by a family member or an intimate partner in the year preceding incarceration.

4.4 Interaction Effects

We tested four level interactions for each model (age, minority, treatment history, abuse history). We found one significant interaction at p=.047 between age and history of physical abuse in model 4. To correct for multiple testing of interactions per model, we conducted a Bonferoni postestimation statistic and, in turn, adopted a more conservative alpha of .0125. Therefore, the interaction effect was no longer statistically significant.

5. Discussion

This study explored the relationship between childhood victimization and outcomes in adulthood such as mental health problems, substance use problems, and sexual victimization for a random sample of women prisoners in the US soon to be released from prison. The findings from this study indicated that child victimization was related to severe mental health problems, substance abuse, and further sexual victimization. Specifically, women prisoners who were both physically and sexually abused as children were more likely to suffer from psychological and emotional problems that required hospitalization. Women prisoners who were either sexually abused and not physically abused or both physically and sexually abused were more likely to have attempted suicide than women not in these categories. These women were also more likely to be sexually victimized as adults by an intimate partner or family member. Women who were physically abused as a child and

women who were both physically and sexually abused were more likely to have a substance use disorder than women who were not.

The results also revealed that the relationship among mental health problems, substance use, and victimization is complex. Although childhood sexual abuse is related to subsequent mental health problems in adulthood, sexual abuse was not a statistically significant predictor of substance abuse. Conversely, although childhood physical abuse predicted substance abuse in adulthood, it was not statistically related to mental health problems. These findings differ from those of prior research with women in the general population. Prior studies have shown childhood sexual abuse linked to substance abuse in adulthood and physical abuse linked to problematic mental health problems in adulthood. Consistent with research on women in the general population, we did find that women prisoners who had received treatment for substance abuse were more likely to have mental health problems. For women prisoners, it is unclear which mechanisms differ and how between childhood victimization and subsequent mental health and substance use problems. What, if anything, makes their experiences different than those of women who do not end up in prison? Does our current use of mandatory minimums and sentencing guidelines prohibit rehabilitative responses to women offenders? Consistent with prior prevalence research, more than half of our sample experienced physical or sexual abuse in childhood; over half had a substance use disorder; and more than a quarter had experienced sexual victimization in the year prior to incarceration. Additionally, approximately ¼ of the sample had been hospitalized for a mental health problem and ¼ had attempted suicide. If our legal responses to women offenders do not consider their therapeutic needs in order to function fully in society, does this imply that correctional institutions should be mandated to provide women specific programming that addresses victimization, trauma, and subsequent consequences?

5.1. Strengths and Limitations

Building on previous research regarding victimization and women prisoners (Browne et al., 1999; Warren et al., 2002), this study has several strengths. First, the researchers were able to gain access to lists of all women at the two prisons who met the eligibility criteria and select a random sample of research participants from these lists. This enabled the researchers to generalize from the sample of participants to women soon to be released from the two prisons that housed the participants. Furthermore, like Browne et al. (1999), interviews were conducted with women from the general prison population, not women already enrolled in mental health or substance abuse programs. All English-speaking women in the general population were eligible to participate, if their name was randomly drawn. Our sampling approach allowed women with severe mental illnesses to be included in the study, reducing the potential for the underreporting of the prevalence of victimization if those with more severe problems were excluded, which may have been in case considering the relationship between victimization and mental health problems (Browne et al, 1999). Only two women who started the interview did not finish it, one because the interviewer assessed that she did not cognitively understand the questions and the other because the researcher thought the participant was too emotionally distraught to continue the interview.

Another strength of this study is that we did not just assess childhood victimization as a broad variable, but analyzed the influence of childhood physical victimization and childhood sexual victimization separately as their own categories along with assessing the influence of being both physically and sexually abused. This created perhaps the most interesting results from the study; that childhood sexual victimization was associated with suicidality and childhood physical victimization was associated with substance abuse problems. While further research will need to uncover the differing trajectories childhood physical victimization and childhood sexual victimization engender, these results speak to the importance of thorough historical assessments and ultimately individualized treatment both

within prison and upon release from prison that is based on women's personal victimization histories, needs, problems, and strengths.

This study also has limitations that need to be considered when analyzing the results. While approximately 83% of women asked to participate agreed to do so, there is no way to know if the other 17% have differing levels of victimization, mental health problem, and substance abuse problems. It is possible that not having data from those who declined to participate lead to the overreporting or underreporting of our constructs of interest. It is possible that women chose not to participate because they did not believe they had anything to contribute due to not having experienced victimization or not having mental health and substance abuse issues. Conversely, it is possible that women chose not to participate because they did not want to think about their traumatic histories and/or discuss their mental health and substance abuse issues with the researcher. For those women who chose to participate, social desirability bias could also lead to the underreporting *or* overreporting of victimization, mental health issues, and substance use problems. These data were collected through self-report and some participants might have altered their answers based on their perception of what the researcher wanted to hear. Finally, this study was conducted in one southeastern state, prohibiting generalization to the experience of all women prisoners within the United States.

5.2 Implications

This study reveals important implications for researchers. First, a larger multi-state study is needed to increase the generalizability of the study results. Specifically, states representing different geographic regions should be sought. Second, there are important yet unanswered questions regarding childhood victimization and its long term consequences. Why is there such a large difference in the prevalence of childhood victimization between the general population of women and women who end up in prison? Do women victims who end up in prison have differential access to treatment resources than those who do not? While this study is unique in that it compared the consequences of childhood physical victimization to the consequences of childhood sexual victimization, we did not include women who had been both physically and sexually victimized as its own category. Finally, do women who have histories of both physical and sexual victimization have more extreme consequences as an adult, such as elevated substance use, more severe mental health problems, and/or more adult victimization?

The study also begs that other issues be discussed and questions be asked beyond the walls of ivory towers. Consistent with other research on the victimization histories of prisoners, we found that women prisoners have disproportionately higher rates of childhood victimization than previous research reveals for the general population of women. In turn, they also have disproportionately higher rates of mental health and substance use problems in adulthood. It is well understood that incarcerated populations have multiple and complex presenting problems upon entry into the criminal justice system. Increasingly, intervention developers targeting incarcerated populations recognize that multimodal interventions are necessary to promote desistance from crime and decrease reincarceration rates. The best way to identify the necessary components of multimodal interventions is to first identify psychosocial mechanisms (e.g., substance use problems) that can be targeted by interventions. For example, although we cannot change a prisoner's criminal history or the fact that she experienced childhood victimization, we can include evidence-based trauma treatment approaches in a multimodal program targeting women prisoners. Yet, trauma treatment cannot be done without consideration of other factors that women may have used to cope with victimization experiences prior to treatment exposure, such as substance use. Because we understand that problematic health and behavioral problems co-exist, we need to understand which co-existing problems are most prevalent in the targeted population (i.e.,

current or former women prisoners) in order to best match treatment options to prospective treatment participant needs.

In conclusion, we ask what our societal responsibilities to victims of childhood abuse are. If we failed to protect them as children, is it our responsibility to protect them as adults – from themselves, from others? What role do mandatory minimums, sentencing guidelines, punitive legal responses to crime associated with drugs perform in this discussion? Is incarceration a just, appropriate response? Because we failed to protect women offenders as children when they were subjected to physical and sexual abuse, do we, at a minimum, owe them appropriate treatment options when we incarcerate them as adults? Regardless of how society responds to the latter question, we know that treatment for women prisoners potentially protects them from continued consequences of their previous abuse, and it also decreases the chances of committing further crimes, which protects the general society and decreases the number of future victims of crime. Unfortunately mental health services for women prisoners are rare, and when they do exist, they are often based on the needs for male prisoners because more is known about that population. We also know, currently, adequate services for prior victimization do not exist in most prisons. This paper provides an important first step in understanding some of the needs of women prisoners so that we can design interventions for women prisoners that promote their chances of post-release success and decrease the chances of future victims of their own offending behaviors.

Acknowledgments

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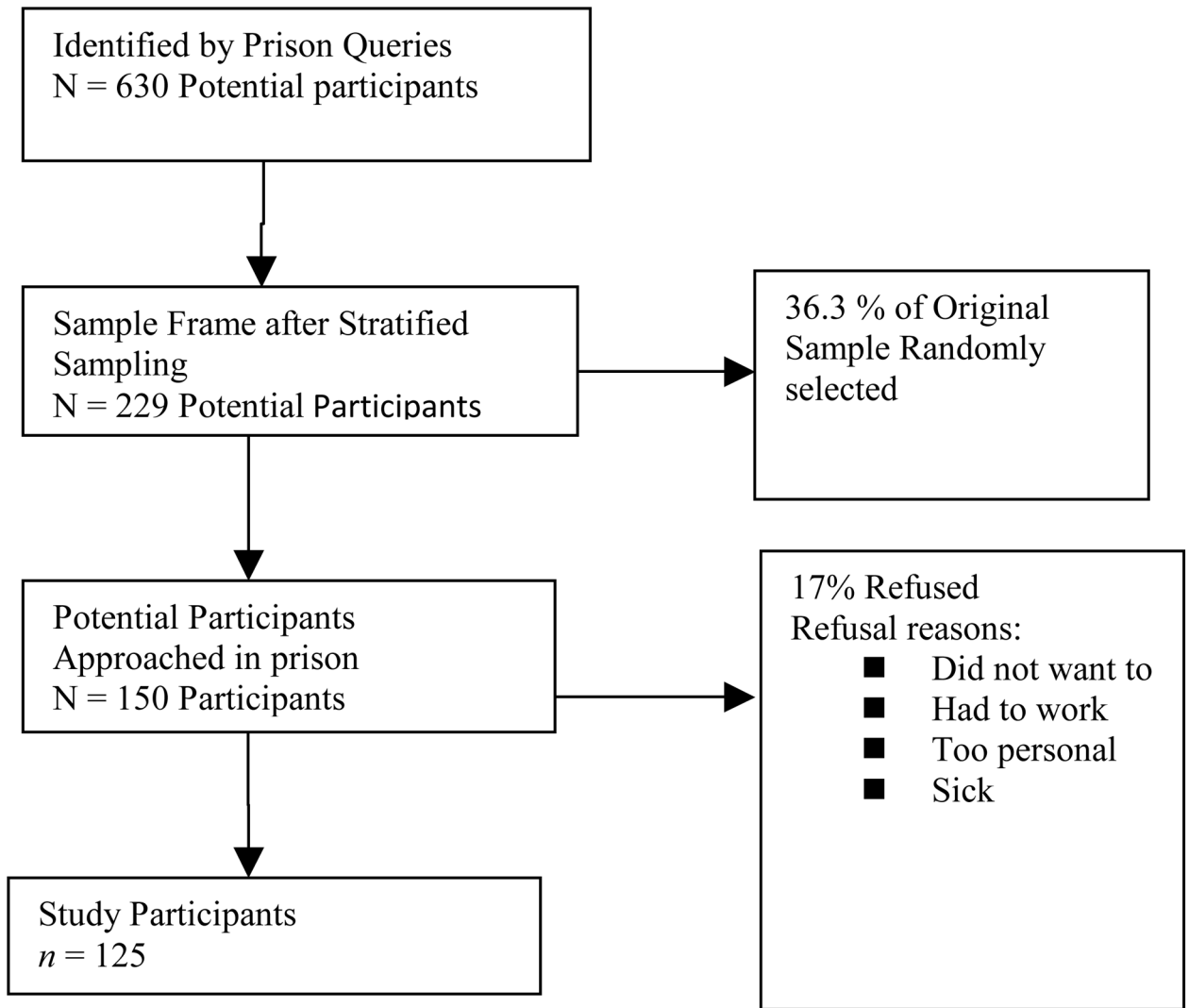
Figure 1.
Sampling Protocol Chart from Identification to Study Participation

Table 1

Characteristics of the Sample

	Mean	SD
Age at incarceration (N=125)	34.3	9.94
Times treated in hospital as adult (N=123)	.84	2.61
Times treated for drug abuse (N=123)	1.41	2.48
	Frequency	Percent
Race (N=125)		
African American	54	43.2
Caucasian	66	52.8
Hispanic	5	4.0
Victimization (N=123)		
Sexually victimized and not physically victimized as a child	14	11.4
Physically victimized and not sexually victimized	25	20.3
Both physically and sexually victimized as child	40	32.5
Not victimized	44	35.8
Sexually victimized year preceding incarceration	34	27.9
Substance Abuse		
Substance abuse disorder (N=124)	77	62.1
Treated for drug abuse (N=123)	65	52.8
Mental Health (N=124)		
Hospitalized as an adult	34	27.6
Attempted suicide	32	25.8

Table 2

Bivariate relationships between predictor variables and outcome variables

Variable	Current substance use disorder (n =122) Mean (SD) % (n)	Attempted suicide (n = 121)	Adult psychiatric hospitalization (n = 121)	Adult sexual victimization (n =122)
Age	33(9.45)	36 (10.40)	36 (10.28)	34 (9.67)
Race (minority)	24% (29) *	11% (13)	11% (13)	11% (14)
Residential drug treatment episodes	2.09(2.92) ***	2.24(3.56) *	2.13(3.5)	2.48(3.35) **
Child Sexual Abuse Only	7% (8)	3% (4)	4% (5)	3% (4)
Child Physical Abuse Only	15% (19)	2% (2) *	3% (4)	3% (4)
Both Child Physical and Sexual Abuse	22% (27)	17% (21) **	13% (16) **	16% (20) ***
No Child Abuse History	17% (21) *	2% (3) ***	6% (7) *	5% (6) **

*
P<.05;

**
p<.01;

***
p<.001

Table 3

Mental Health as Dependent Variables

	Dependent Variables									
	Hospitalized for Mental Health Problem as Adult				Ever Attempted Suicide				
Predictors	B (SE)	OR (95%CI)	P	Wald	B (SE)	OR (95%CI)	P	Wald
Age	.015(.02)	1.015 (.972–1.06)	.502	0.451	.007(.03)	1.007 (.958–1.059)	.780	0.078
Race	–.257(.45)	0.774 (.318–1.882)	.774	0.320	–.097(.52)	0.908 (.331–2.491)	.851	0.035
Physical and Sexual abuse	1.386(.55)	3.998 (1.362–11.735)	.012	6.362	3.072(.77)	21.585 (4.721–98.69)	<.001	15.691
Physical abuse	.085(.70)	1.089 (.277–4.285)	.903	0.015	.443(1.008)	1.557 (.216–11.231)	.661	.193
Sexual abuse	1.168(.73)	3.217 (.772–13.407)	.109	2.573	2.047(.939)	7.743 (1.23–48.744)	.029	4.755
Drug Treatment	.148(.08)	1.159 (.987–1.361)	.072	3.240	.216(.094)	1.241 (1.033–1.490)	.021	5.311

Table 4

Substance Abuse and Adult Victimization as Dependent Variables

	Dependent Variables								
	Substance Abuse Disorder				**Sexually Victimized Year Preceding Incarceration**				
Predictors	**B (SE)**	**OR (95%CI)**	**P**	**Wald**	**B (SE)**	**OR (95%CI)**	**P**	**Wald**	
Age	−.046(.02)	.955 (.916–.996)	.033	4.571	−.032(.03)	.969 (.920–1.020)	.228	2.453	
Race	−.1.106(.41)	0.331 (.147–.743)	.007	7.181	−.800(.50)	0.449 (.168–1.200)	.110	2.550	
Physical and Sexual abuse	1.171(.49)	3.225 (1.229–8.462)	.017	5.663	2.551(.66)	12.823 (3.555–46.25)	<.001	15.191	
Physical abuse	1.559(.60)	4.752 (1.461–15.457)	.010	6.789	.007(.918)	1.007 (.166–6.094)	.994.	.000	
Sexual abuse	.899(.70)	2.457 (.629–9.604)	.196	1.671	1.704(.842)	5.496 (1.054–28.64)	.043	4.092	