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Conditions of Confinement and Incarcerated Women's Mental Health

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Abstract

Research on incarceration and mental health from a deprivation perspective has focused primarily on incarcerated men, rendering the links between prison deprivations and women's mental health largely unknown. Previous research indicates, however, that women experience prison differently than do men, making it important to examine how prison conditions impact women's mental health. Here, we use national data on 1,490 women incarcerated in the United States and the 60 state prisons in which they reside to examine the links between prison conditions and symptoms of mental health conditions, net of individual-level factors. Hierarchal negative binomial regression models indicate that the punitiveness of the prison environment, the recent occurrence of a suicide in the prison, and fewer prison programs are all associated with symptom count. These results have important implications for understanding the mechanisms through which prison deprivations are linked to women's mental health.

Keywords: women in prison, mental health, incarceration, deprivation theory, gendered pains of imprisonment

Conditions of Confinement and Incarcerated Women's Mental Health

Poor mental health is a serious and pervasive problem in the American system of mass incarceration. The problem is particularly pronounced for women, as nearly three-quarters of women in prison report a mental health condition (James & Glaze, 2006) and rates of mental illness among incarcerated women are significantly higher than in the general population of U.S. women (Fazel & Danesh, 2002; Fazel & Baillargeon, 2011; Prins, 2014). Despite the fact that a sizable proportion of women in prison have severe mental health conditions, there is little research investigating the source of incarcerated women's mental health problems from a structural perspective. In particular, research has not considered how the conditions of the prison environment might contribute to the mental health of incarcerated women (Liebling, 2006).

Theoretically, we should expect that onerous prison conditions are linked to poor mental health outcomes through a larger stress process whereby prison conditions represent potent environmental stressors for incarcerated people. Indeed, past empirical work from a prison deprivation perspective has documented how the "pains of imprisonment" are associated with poor mental health for men (e.g., Edgemon & Clay-Warner, 2019; Slotboom et al., 2011). There are certain deprivations, though, that are even more severe in the typical women's prison than in men's prisons, including overcrowding, limited recreational activities, and harsh penal regimes (Britton, 2003; Lane 2020; Leigey, 2019; Owen, Wells, & Pollock, 2017, Sharkey, 2010).

The recognition that women face unique prison conditions has led scholars to call for research investigating the "gendered pains of imprisonment" (Crewe, Hulley, & Wright, 2017). However, past studies of the relationship between prison deprivations and incarcerated women's mental health have either focused on a narrow band of mental health conditions, collected information about institutional characteristics from the prison residents, resulting in common

method bias, and/or included data from only a small number of prisons (Kruttschnitt & Vuolo 2007; Sharkey, 2010; Slotboom et al., 2011).

Here, we analyze data from almost 1500 women residing in 60 prisons across the U.S. to examine the relationship between the poor mental health of incarcerated women and the conditions of their confinement. The unique characteristics of these data allow us to test not only arguments from the broader literature on conditions of confinement and mental health (Edgemon 2022; Edgemon & Clay-Warner, 2019) but also arguments that are specific to incarcerated women. Not only do women's prisons differ from men's prisons in many ways, but women also enter prison with a different set of pre-incarcerative experiences than do men, such as higher rates of physical and sexual abuse (Kruttschnitt & Gartner, 2003). Men and women also face different gender role expectations and constraints. For example, prison staff often view incarcerated women as overly emotional and police their actions more heavily than the actions of incarcerated men. This affects incarcerated women's reactions to the prison environment and their interactions with prison staff (e.g., Britton, 2003; Owen, Wells, & Pollock, 2017). Thus, in proposing how prison deprivations are associated with women's mental health, we draw from research on women's prisons and on women's prison experiences (e.g., Aiello & McCorkel, 2018; Dye & Aday, 2013; Liebling, 1992).

In order to understand which particular institutional characteristics are most associated with poor mental health among female prison residents, we analyze data from the *2004 Survey of Inmates in State Correctional Facilities* (SISCF) in combination with data from the *2000 Census of State and Federal Correctional Facilities* (CCF). By combining these data, we are able to examine the relationship between institutional characteristics and mental health net of individual risk factors, which follows previous research on incarcerated men drawn from the SISCF and

CCF (Edgemon & Clay-Warner, 2019). We situate our analysis within the larger theoretical framework of the stress process model, highlighting the ways that specific prison conditions might influence the mental health of incarcerated people. Our use of national data also extends previous research on incarcerated women, which has relied primarily on small convenience samples (e.g. Aiello & McCorkel, 2017; Kruttschnitt, Gartner, & Miller, 2000; Sharkey, 2010).

Background

Women's prisons in the United States have a unique history. Due to their small numbers, women were often incarcerated inside separate wings of male institutions, where they faced unique deprivations and abuse (Morton, 1998). At the same time, incarcerated women were generally viewed as "special" and in need of feminine guidance (Morton, 1998). Beginning in the mid-19th century, the reform movement sought to institutionalize this perspective by removing women from male facilities and providing them with programs that encouraged "feminine" pursuits, such as sewing, cooking, and parenting in an attempt to recast them as "proper" women (Britton, 2003; Owen, Wells, & Pollock, 2017; Pollack, 2002). Eventually, the reform movement was largely abandoned for both men's and women's prisons in favor of a custodial model, reflecting the increased "tough on crime" orientation that characterized the era of the 1970s. This largely saw women's and men's prison become closer in design and function (Owen, Wells, & Pollock, 2017; Pollack, 2002).

Today, women's prisons in the United States are by and large guided by the same policies that govern men's prisons (Chesney-Lind & Pasko, 2013; Kruttschnitt & Gartner, 2003; Owen, 1998; Owen, Wells, & Pollock, 2017). That said, women's prisons carry vestiges of the reform movement in their design and programmatic offerings, such as a greater focus on the aforementioned traditional "feminine" pursuits and a greater emphasis placed on being a

"proper" woman (Britton, 2002). In addition, there are key differences in the pattern of prison deprivations that women face (Crewe et al., 2017; Leigey, 2019). For example, women's prisons tend to face higher levels of overcrowding and stricter prison regimes than do men's prisons (Britton, 2003; Owen, Wells, & Pollock, 2017; Pollack, 2002). Thus, while the custodial, "get tough on crime" movement has sought parity between the institutions, women's prisons still differ from men's in important ways.

In addition to these institutional differences, past research has documented how women's prison experiences differ from men's (Zettler, 2020). Interpersonal dynamics in women's prisons tend to be more fluid and focused on forming kinship bonds (Kruttschnitt & Gartner, 2003; Pollock, 2002; but see, Greer, 2000), and women's paths to prison adjustment and coping tend to focus heavily on these bonds (Dillavou et al., 2022; Pinheiro et al., 2021). Further, incarcerated women are often less violent than incarcerated men and commit fewer serious infractions, overall (Reidy, Cihan, & Sorensen, 2017). Despite this, incarcerated women have their actions policed more heavily than do incarcerated men, adding to the already more punitive regime structure of most women's prisons (Britton, 2003; McCorkel 2013; Owen, Wells, & Pollock, 2017).

Women in prison also face serious mental health challenges (Abtrah, Teplin, & McCelelland, 2003). Rates of mental illness are higher among incarcerated women than in the general population of women in the United States (Blanchette & Brown, 2006; Fazel & Danesh, 2002; Fazel & Baillargeon, 2011; Prins, 2014). In fact, nearly three-quarters of incarcerated women report a mental health condition (Bureau of Justice Statistics, 2006). Incarcerated women display high rates of major depressive disorder, suicide attempts, PTSD, schizophrenia, borderline personality disorder, and substance abuse problems (Blanchette & Brown, 2006;

Maeve, 1999; Miller, 1994). Given these high rates, it is particularly important to investigate the sources of women's poor mental health in prison.

Deprivation Theory, Stress Process, and Mental Health

According to deprivation theory, one of the most utilized theoretical traditions in penology, the prison environment shapes the behavioral outcomes of detained individuals (Liebling, 2006). Here, the prison is framed as a total institution with a variety of deprivations termed "the pains of imprisonment" or conditions of confinement (Goffman, 1961; Sykes, 1958). These conditions include aspects of the prison environment, such as overcrowding, lack of access to prison programs, and a punitive prison regime. Onerous prison conditions have been linked to violence and other forms of misconduct (Dâmboeanu an Nieuwbeerta, 2016; Leigey, 2019), recidivism (Windzio, 2006), and suicide (Dye, 2010). Past work builds on the deprivation approach to specify how the "pains of imprisonment" might be associated with poor mental health for incarcerated persons (Edgemon, 2022; Edgemon & Clay-Warner, 2019).

In many ways, the theoretical links between the pains of imprisonment and the mental health of incarcerated people can be situated within the broader stress process model. Fundamentally, this model describes the process by which stress and stressors lead to negative mental health outcomes by consistently testing coping resources and causing significant burdens on psychological functioning (Aneshensel 2015; Aneshensel and Avison 2015). According to this framework, environmental stressors, such as those represented by onerous prison conditions, are particularly potent, as these stressors often pervade daily routines (Pearlin 1989) and, due to their structural nature, can create mental health challenges for groups of people exposed to the same stressful environment. Depriving prison conditions represent chronic environmental stressors that are nearly omnipresent for individuals incarcerated within the prison walls.

Because of their pervasive nature, prison deprivations can lead to negative mental health outcomes.

With few exceptions, however, empirical literature on the conditions of confinement and the mental of health of incarcerated people has largely focused on men (Kruttschnitt & Vuolo, 2007; Slotboom et al., 2011). At the same time, scholars have highlighted the so-called "gendered pains of imprisonment," bringing attention to the ways that women uniquely experience the depriving conditions of prisons (Crewe et al., 2017; Leigey, 2019). These "gendered pains" include higher levels of certain deprivations in women's prisons than in men's prison, including extreme overcrowding, lack of programming and work opportunities, and punitive punishment structures (Britton, 2003; Crewe et al., 2017; Owen, 1998; Pogrebin and Dodge 2001; Pollock, 2002; Slotboom et al., 2011). Further, research in the UK found that women often had more adverse reactions to prison experiences than did men (Crewe et al., 2017). Thus, the environmental stressors that women experience could be greater and more chronic than those experienced by men.

It is likely that gendered pains of imprisonment are implicated in the mental health outcomes of incarcerated women through a larger stress process. However, what little previous empirical research exists on the topic has, primarily, examined data on prison conditions from individual residents, rather than from official sources (e.g., Kruttschnitt & Vuolo, 2007; Slotboom et al., 2011). While this work shows how prison deprivations are subjectively experienced and how they might impact the mental health of incarcerated women, it is unable to assess properly the impact of prison structure, which is central to the deprivation model and to highlight the explicit links between environmental stressors and mental health. Thus, the implications of prison deprivations for incarcerated women's mental health remain unclear.

Though there is minimal research on the mental health of incarcerated women, a review of the extant literature suggests a number of prison conditions that may be associated with women's poor mental health while incarcerated. First, overcrowding has been consistently found to have mental health consequences for incarcerated populations (Cox et al., 1984; Gaes, 1985; Lawrence & Andrews, 2004). Since women's facilities tend to have high rates of crowding (Pollack, 2002; Sharkey, 2010), overcrowding is likely to be an important factor in incarcerated women's mental health.

Next, activity deprivation and boredom caused by poor availability of work-related assignments and the absence of meaningful recreational and educational activities has been linked to worsened mental health for men (Cunningham, Reidy, & Sorensen, 2016; Tartoro & Lester, 2009). Given that women's prisons typically offer fewer recreational and vocational activities than do men's prisons (Themeli, 2006), activity deprivation is a pertinent concern for incarcerated women's mental health. Indeed, research on incarcerated women finds that lack of opportunities for work, leisure, and education are significantly associated with negative psychological outcomes (Slotboom et al., 2011), likely as a result of increased stress caused by boredom and lessened opportunities for social connection.

Visitation and family contact might also have important implications for the mental health of incarcerated people and especially for incarcerated women. Indeed, past research suggests that separation from family has a particularly profound effect on incarcerated women (Aiello & McCorkel, 2018; Liebling, 1994; Owen, 1998; Pollack, 2002; Wood and Grasmick, 1999). There are several reasons why women experience family separation due to incarceration differently than do men. For one, incarcerated women tend to be placed at greater distances from the family than are men, as there are fewer women's prisons than there are men's prisons (Aiello

& McCorkel, 2017). In addition, incarcerated women who are mothers are more likely to be primary caregivers to children prior to incarceration than are men (Kruttschnitt & Gartner, 2003). This fact often pushes the children of incarcerated women into the foster system or into the care of other family members, which can create less opportunities for children to visit. Institutionally, prison policies that restrict access to visitation compound these aforementioned difficulties and likely represent an important institutional deprivation for incarcerated women.

Next, the level of punitiveness in the prison environment might also be associated with worsened mental health (Sykes, 1958; Weinberg, 1942). Punitive prison regimes that police and punish the behavior of incarcerated people might inspire heightened stress. In prisons, punitiveness often manifests as write-ups for behavior violations and restrictive punishments, such as solitary confinement. Research suggests that female prison residents face more scrutiny for rule infractions than do men (Britton, 2003; Compton-Wallace, 2003). In a study of prison residents in Texas, McClellan (1994) found that women were significantly more likely than men to be cited for rule infractions, especially minor ones (see also Girshick, 1999). A recent federal report by the United States Commission on Civil Rights (2020) supports much of this previous research, finding that incarcerated women are more likely than are men to receive a host of disciplinary citations ranging from minor offenses, like talking back, to major offenses, like trafficking in contraband.

Not only are women more frequently cited for rule infractions, but they also receive particularly severe penalties for these infractions (Britton, 2003; Compton-Wallace, 2003). The U.S. Commission on Civil Rights (2020) report similarly details the harsh consequences that incarcerated women face for even minor rule infractions, including losing the privilege to purchase items from the prison commissary, the loss of good conduct credits, and solitary

confinement. These penalties for even relatively innocuous behavior represent a particular deprivation for women in prison, where they are heavily policed for insubordinate action (McClellan, 1994). Thus, women in prison seem to face more punitive responses to their behavior than do men.

In addition, the security level of the prison might be an important deprivation factor in the mental health of incarcerated women. Security level represents a general, rather than a specific, deprivation. That is, higher security levels are often indicative of stricter prison regimes that impose a greater level of control on residents' behavior. Higher security prisons generally have increased restrictions on resident movement, disallowing easy access to prison programs and recreational activities. Past studies have indicated that people incarcerated within high security level prisons display increased levels of mental distress (Haney, 2006; Lovell, 2008)[1].

Pathways & Individual Level-Risk Factors

Ample literature has suggested that women face unique pathways to criminal justice involvement and, ultimately, incarceration (Salisbury & Van Voorhis, 2009). Taking these pathways into account is crucial for any analysis of incarcerated women's mental health, as several common experiences among incarcerated women are also likely risk factors for mental distress. For example, incarcerated women have often been the victims of violence and have experienced a large number of traumatic life events (Bloom et al., 2003; Cabeldue et al., 2019;

[1] There is a legitimate concern that this observed effect might be due to selection effects where individuals with more pronounced mental health concerns are simply more likely to be housed in higher security prisons. There is, however, little empirical evidence to suggest that individuals with more severe mental health concerns are more likely to be housed in higher security environments, and what literature does exist has primarily been conducted on male inmates (Mulvey and Schubert 2016). Additionally, if mental health were the primary deciding factor in the prison placement process, then the mental health service capacities of the facility and not the security level of the facility should be the primary deciding factor. It is not clear that higher security level facilities have greater levels of mental health services (Kim, Becker-Cohen, and Serakos 2015). In all, it is difficult to draw conclusions about how mental health evaluations influence prison placement decisions for women, as there are insufficient data. For this reason, security level is used as a proxy and control variable to represent prison deprivation in this study and is not assigned causal weight.

Carson, 2020; Chesney-Lind & Pasko, 2013; Daly, 1992; Owen, 1998). Indeed, experiences of physical and sexual victimization are particularly common among incarcerated women, with research finding that well over half of incarcerated women experienced some form of physical or sexual victimization prior to incarceration (Greenfield & Snell, 1999). In a nationally representative sample of state and federal prison residents, Leigey and Reed (2010) found that 70 percent of non-life sentenced women reported a history of physical victimization and 40 percent reported a history of sexual victimization. Further research finds that while both physical and sexual victimization predispose incarcerated women to mental health difficulties, the effect of sexual victimization on mental health is particularly strong (Aday et al., 2014; Verona, Hicks, & Patrick, 2005). Incarcerated women are also likely to have experienced other events such as homelessness and economic instability as part of their pathways to prison (Chesney-Lind & Pasko 2013, Owen, 1998; Pollack, 2002), all of which might be implicated in mental distress.

In addition to the unique pathways to incarceration that women face, basic demographic factors might also be relevant for mental health. For example, both age and race have long been linked to mental health in the general population. Here, white individuals are more likely than other racial groups to report mental health problems (Breslau et al., 2006), while the onset of mood disorders and anxiety disorders in the general population typically occurs after adolescence and early adulthood (WHO, 2007). Finally, parental status may be important for mental health as being separated from one's children due to incarceration can have profound psychological consequences, especially for incarcerated women (Mears et al., 2012). In all, it is important to control for variables associated with women's unique pathways to prison, as well as for demographic factors associated with mental distress, in order to understand how prison structures are associated with the mental health of incarcerated women.

Current Study

Documenting the relationship between prison characteristics and women's mental health net of common predisposing factors is the first step in determining whether and how prisons shape women's mental health while incarcerated. The limited work on incarcerated women's mental health either neglects to investigate the impact of prison context (e.g., Cabeldue et al., 2019; Harner and Riley, 2013; Kennedy et al., 2016) or collects information on prison deprivations from individual prison residents, rather than from prison officials (e.g., Kruttschnitt & Vuolo, 2007; Slotboom et al., 2011). Related studies on prison suicide are largely either small-scale qualitative studies that do not account for the wide variation in prison conditions (Dye & Aday, 2013), or are quantitative studies that examine prison suicide at the aggregate level, conducted primarily with male prison populations (e.g., Huey & McNulty, 2005; Dye, 2010). Further, studies on prison suicide do not account for the empirical differences between suicide as a behavior and the mental health of individuals nor on the gendered reality of suicide, and thus provide questionable detail on the links between prison conditions and the mental health of incarcerated women.

Our study is informed by previous work utilizing the prison deprivation model and mental health (Edgemon & Clay-Warner, 2019) and is situated within the broader stress process framework (Pearlin 1989). Here, we isolate specific prison conditions measured at the institutional level to examine their association with the mental health of incarcerated women. In addition, we also control for a host of individual characteristics that may predispose one to mental distress, such as physical and sexual victimization, alcohol abuse, and pre-incarceration SES, as well as age and race. Thus, not only does our study add to the theoretical and empirical literature on incarcerated women's mental health by examining the influence of prison

deprivations on the mental health of incarcerated women within a broader stress process framework, but it also tests the applicability of the deprivation model to women. In doing so, we extend literature on the "gendered pains of imprisonment" (Crewe et al., 2017). We describe our data in depth below and then discuss analytic strategy.

Data and Methods

Data

The data for this study are drawn from two sources: the *2004 Survey of Inmates in State Correctional Facilities* (SISCF) and the *2000 Census of State and Federal Correctional Facilities* (CCF). The SISCF has been collected periodically by the Bureau of Justice Statistics since 1974. These data contain individual-level information on a national sample of state prison residents. The total sample size of the 2004 SISCF is approximately 14,500 individuals selected from 1,585 state prisons. This dataset represents the largest available sample of U.S. state prison residents in existence. For this paper, we utilize the sample of women from the SISCF (n=2,931). Pertinent to our analysis, the SISCF contains information on the mental health of individuals, as well as many of the individual-level predictors of mental health identified in the literature. While the SISCF contains only limited measures of pre-incarcerative mental health, we are able to control for a number of pre-disposing factors. Mental health measures in the SISCF were measured via a series of questions asking about psychological experiences within the past year. Because of this, we only include persons who have been incarcerated for at least a year (n = 1,905) in order to better represent the impact of prison deprivation on mental health.

In addition, we also utilize data from the *2000 Census of State and Federal Correctional Facilities* (CCF). The CCF is a longitudinal survey of U.S. prisons, sponsored by the U.S. Department of Justice and the Bureau of Justice Statistics and conducted by the U.S. Census Bureau. Important for this paper, the CCF has information on several institutional measures of

deprivations in U.S. state prisons including overcrowding, security level, punitiveness, and program availability.

We merge data from the SISCF and the CCF via a common indicator that appears in both data sets: population count of the prison. Because population count data in the SISCF was drawn directly from the CCF, it is possible to match on this variable. However, due to duplicate population counts in the CCF, some cases could not be identified by this method. For example, if individual X was in a prison with a population count of 500 and there were two prisons with a population of 500 in the Census, then it would be impossible to determine in which of these two prisons individual X resided. When this occurred, we dropped the case from analysis. In total, 390 cases out of the original 1,905 cases were dropped for this reason, leaving data on 1,515 individuals available for potential analysis.

Among these 1,515 cases, 48 had data missing on at least one variable. Missing data were primarily on two individual-level variables: whether the person had ever been homeless and whether she had been employed before arrest. Demographic characteristics, such as race and age, and questions about physical and sexual victimization had relatively few missing data. None of the cases had missing data on the prison characteristics variables, as these data were reported by the institution.

Missing response data were handled through maximum likelihood estimation (MLE). Maximum likelihood is a procedure wherein the set of values of the model parameters that maximize the likelihood function are selected through imputation. Here, maximum likelihood looks at larger patterns in the available data to produce estimates of the missing values. This gives a unified approach to estimation (Myung, 2002). This approach left a final sample of 1,490 women nested in 60 U.S. state prisons. Again, for each case, the combined dataset provides

individual-level information gathered from each prison resident along with prison-level data reported by the institution.

Dependent Variable

Our dependent variable is the number of self-reported mental health symptoms over the last year. These data were collected during a modified clinical interview instrument based on the Diagnostic and Statistical Manual of Mental Disorder IV. This instrument contained 20 questions that measured the self-reported occurrence of mental health symptoms within the last year, including depression, anxiety, hostility, paranoia, and psychosis. Questions were dichotomized with "1" indicating that the individual experienced the symptom in the last year and "0" indicating that she did not. Similar to previous studies using these data, responses were summarized into an additive scale that counts the number of mental health symptoms reported (Porter, Kozlowski-Serra, and Lee, 2021)[2]. Because selection criteria of the sample were limited to persons incarcerated for at least one full year, all measures of mental health symptoms within the sample occurred after incarceration and do not reflect mental health symptoms prior to incarceration.

Focal Independent Variables: Prison Deprivations

Our model incorporates several institutional characteristics of the prison including: punitiveness, overcrowding, availability of work assignments, number of prison programs, whether the prison provides adequate access to visitation, whether the prison is under a federal or state decree for harsh environmental conditions, whether a suicide recently occurred in the

[2] While the measure of the dependent variable is based on a modified version of the DSM-IV, it was not, itself, intended to be used for diagnostic purposes and thus cannot be used to establish valid scales of mental health disorders or thresholds of mental health disorders. Instead, these measures simply reflect experiencing symptoms of mental health distress. Please see Porter, Kozlowski-Serra, and Lee (2021) for more information.

prison, and security level. Each of these factors is measured at the institutional level, and the data are reported by prison officials in the CCF.

Punitiveness captures the overall level of official response to rule violations. This measure is derived from two indicators in the CCF. The first indicator measures how many residents were placed in a restricted population unit as punishment for a disciplinary infraction within the last year. This functions as a measure of the total number of residents in the prison that received an extreme punishment over the course of a year. The next indicator is the total number of misconduct/disciplinary reports that were filed on incarcerated people within the facility for the last year. Punitiveness was calculated as the ratio of the number of people placed in a restricted population unit as disciplinary action relative to the number of disciplinary reports. Higher ratios indicate a more punitive response to rule violations.

For the *overcrowding* measure, we computed a standardized index similar to the measure constructed by Huey and McNulty (2005). This index includes (a) the ratio of the number of residents to the number of correctional staff in the prison, and (b) the ratio of the total number of residents to the design capacity of the prison. These ratios were summed and then standardized to form a scale of overcrowding. Higher scores on the scale reflect a greater level of overcrowding.

Next, boredom created by not having a work assignment or not having access to a variety of programs can negatively impact mental health (Cunningham, Reidy, & Sorensen, 2016; Liebling, 1992; Slotboom et al., 2011). We include two variables that each measure some aspect of activity deprivation. First, *work assignments* is a ratio comparing the number of residents with work assignments to the overall population of the prison, with higher numbers indicating less activity deprivation. Next, *number of programs* is an additive scale that measures the number of

work, education, and treatment programs that are offered in the prison, with higher numbers indicating less activity deprivation.

Limited visitation might also negatively impact incarcerated women's mental health (Aiello & McCorkel, 2018). To measure this effect, we include a dichotomous variable called *Visitation*, which indicates whether the prison was under a court order for failing to provide adequate access to visitation and to improve this access for people incarcerated within the facility. A value of "1" indicates that the prison was under such an order.

Next, *Harsh Conditions* measures whether the prison was under a State or Federal court order or consent decree for the totality of harsh conditions of confinement at the time of Census data collection, with "1" indicating that the prison was under such an order.

Suicide is coded "1" if a suicide occurred in the prison in the last year. The occurrence of a suicide in a facility indicates a more deprived, dysfunctional environment (Tartaro & Lester, 2009) and may, itself, increase distress. While suicides are measured within the last year of census data collection in 2000, it is likely that such suicides represent a chronic dysfunction that is unlikely to dissipate within four years (Tartaro & Lester 2009).

Finally, we include a measure for security level. This dummy variable compares *minimum security* institutions with all other types of institutions, as previous research demonstrates that there are greater differences in deprivation between minimum security institutions and all others (Adams, 1992; Liebling, 1999; Salive, Smith, & Brewer, 1989).

Individual-level Factors

We control for eleven individual-level characteristics, all drawn from the SISCF: race, age, history of physical abuse, history of sexual abuse, employment prior to incarceration, residential status before incarceration, severity of alcohol and substance dependence prior to

incarceration, parenthood status, experiences with solitary confinement, and experiences with rule violations. Each of these variables has been shown to be associated with mental health (James & Glaze, 2006; Greenberg & Rosenheck, 2008). The variable *Black* is a dichotomous variable comparing white prison residents with black prison residents, with black residents coded as "1," while the variable *Other* is a dichotomous variable comparing white prison residents with residents that identify as a race other than black or white, coded as "1." *Age* is the recorded age of the respondent at the time of the interview. History of *physical abuse* is coded "1" if the respondent indicated in the SISCF that she experienced physical abuse prior to incarceration, while *sexual abuse* is coded "1" if she reported experiencing sexual abuse prior to incarceration.

Unemployed is coded "1" if the respondent was unemployed in the month before being incarcerated. *Homeless* is coded "1" if the respondent indicated in the SISCF that she was homeless the month before being incarcerated. *Alcohol abuse* is computed from 11 survey questions measuring the level of alcohol dependency and abuse prior to incarceration. Questions included: "During the year before your admission to prison, did you more than once want to cut down on your drinking or try to cut down on your drinking but found you couldn't do it?"; "During the year before your admission to prison, did you lose a job because of your drinking?"; "Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover?"; "Have people ever annoyed you by criticizing your drinking?" An exploratory factor analysis (EFA) showed that all items loaded on a common factor (the lowest loading was .94), and the alpha was .98. Higher scale values indicate higher levels of alcohol abuse and dependency prior to incarceration.

Similarly, *substance abuse* is computed from 19 survey questions measuring the level of dependency on illicit drugs (not including alcohol) prior to incarceration. Questions included: "In

year before admission, did you give up activities in favor of using drugs?"; "In year before admission, did you keep using drugs even as it caused emotional problems?"; ": "In year before admission, did the usual amount of drugs that you used have less effect?"; : "In year before admission, did you experience symptoms of withdrawal from drugs?" An EFA showed that all items loaded on a common factor (the lowest loading was .90), and the alpha was .95. Higher scale values indicate higher levels of substance abuse and dependency prior to incarceration.

Parent is coded as "1" if the respondent indicated that she had children. Next, *solitary confinement* is coded as "1" if the respondent reported being placed into solitary confinement for any length of time during her sentence. Finally, *rule violations* is coded as "1" if the respondent received a disciplinary action for or was found guilty of a major rule violation within the last month of the SISCF interview.

Analytic Strategy

We conduct a negative binomial multi-level analysis with residents nested within prisons. In these models, residents' characteristics and experiences are entered as level 1 variables, and prison environmental conditions are entered as level 2 variables. We employ this strategy for several reasons. First, multi-level models account for autocorrelation due to clustering by treating level 2 effects as random (Raudenbush & Bryk, 2002). Next, unlike traditional regression analysis, multi-level models also allow for the estimation of cross-level effects. This is relevant for our analysis, as we wish to see how prison-level conditions are associated with individual-level mental health. We utilized a negative binomial model because our dependent variable is a count-level variable, which requires a modeling strategy that adjusts for the non-linear nature of count data (Hox et al., 2018).

Two different models are presented. The first model includes all level 1 variables in order to estimate the association between these individual-level variables and mental health while controlling for the clustering of errors at the prison level. The second model adds in all level 2 variables modeled as random effects and offers the final estimate. Again, the final sample is 1,490 women residing in 60 U.S. state prisons.

Results

Descriptive Statistics

Table 1 presents descriptive statistics. Proportions are reported for dichotomous variables, while means and standard deviations are reported for scale-level variables. Forty-seven percent of the prison residents are white, 42 percent are black, 11 percent identify as other, and their average age is 36 (sd=9.93). Around half of the sample reported experiencing physical abuse, while forty-two percent reported a history of sexual abuse. Nearly 40 percent of the sample indicated being unemployed prior to incarceration, while just over a tenth of the sample indicated being homeless immediately prior to incarceration. Around 80 percent of the women in the sample were parents, just over a tenth of the sample reported experiencing solitary confinement, and around half of the sample had been found guilty of a major rule violation in the last month. The average score on the alcohol abuse scale was 0.17, while the average score on the substance scale was 0.31. Finally, the average mental health symptom count was 6.41 symptoms (sd=4.01).

<INSERT TABLE 1 HERE>

Turning now to the deprivation variables, we see that the majority of women were incarcerated in a minimum-security prison (77 percent), and 43 percent of the sample resided in a prison that was under a current consent decree for harsh conditions of confinement. Further,

around seven percent of the sample resided in a facility with limited access to visitation. A tenth of the sample resided in a prison that reported a recent suicide. The average number of programs offered across the prisons was 13.35 (sd=2.73). Finally, the average ratio of residents with work assignments to the overall population of the prison was 0.65 (sd=.33), while the average ratio of residents placed in a restricted population unit as disciplinary action relative to the number of disciplinary reports in the prison was 0.19 (sd=.74).

Individual-Level Variables

There are a number of individual-level variables that are significantly associated with higher mental health symptom counts in model 1 (Table 2, model 1). First, experiencing physical abuse prior to incarceration increased mental health symptom count by a factor of 1.23 ($p<.01$), while experiencing sexual abuse prior to incarceration increased symptom count by a factor of 1.31 ($p<.01$). Age was negatively associated with symptom count (IRR = 0.99; $p<.01$). In addition, experiencing homelessness prior to incarcerated was associated with an increased symptom count (IRR=1.10; $p<.05$). As expected, higher levels of alcohol dependence before incarceration were associated with an increased symptom count (IRR = 1.27; $p<.01$) as were higher levels of substance abuse prior to incarceration (IRR = 1.37; $p<.01$). Finally, women who were placed in solitary confinement within the last year had a symptom count 1.24 times greater than women who were not placed in solitary confinement within the last year ($p<.01$), while women who were found guilty of rule violations within the last month of the SISCF interview had a symptom count 1.19 times greater than women who were not found guilty of rule violation in the last year ($p<.01$). Interestingly, the IRR and significance levels of the individual-level variables are largely unaffected with the addition of the deprivation variables (please see table 2, model 2 for comparisons).

Deprivation Variables

The focal variables in this analysis are the prison-level variables, as these represent deprivations. There are two deprivation factors that are significantly related to symptom count and one other that is approaching significance. First, the punitiveness of the prison was significantly associated with symptom count. Specifically, a one unit increase in the punitiveness of the prison increased individual symptom count by a factor of 1.11 ($p<.05$). Next, residing in a prison where a suicide had occurred increased symptom count by a factor of 1.22 ($p<.05$). Finally, the number of programs that a prison offered approached significance. Specifically, a one unit increase in the number of programs that the prison offered decreased symptom count by a factor of .97 ($p<.10$). There were no significant effects for overcrowding, work assignments, inadequate visitation, whether the facility was under a court order to improve harsh conditions, or security level.

<INSERT TABLE 2 HERE>

Discussion

While literature documents how women's prison experiences differ from men's, there has been little published about how incarcerated women's mental health might be associated with their unique prison experience (Liebling, 1992, 1994; Kruttschnitt & Gartner, 2003). The stress process model offers a useful theoretical lens that links chronic environmental stressors, such as those represented by prison deprivations, to negative mental health outcomes, thus suggesting that mental health outcomes among incarcerated people are, partly, a function of the deprivations that people in prison experience. If this is the case, then we would expect that women who reside in prisons where these environmental stressors are more severe will experience more symptoms of poor mental health than women in less depriving environments, net of individual factors.

Here, we focus on the gendered pains of imprisonment, which research suggests are particularly relevant to incarcerated women (Crewe et al., 2017; Owen, 1998; Pollack, 2002). Our multilevel models controlled for predisposing individual-level factors, as well as several prison-level factors associated with mental health of incarcerated people (Dye, 2010; Slotboom et al., 2011).

Our central finding is that the punitiveness of the prison regime is negatively associated with individual mental health. Specifically, we found that punitiveness in the prison was associated with a higher number of self-reported mental health symptoms. Previous literature on women's prisons has documented the often capricious nature of punishments in women's prisons (Britton, 2003). Indeed, a recent report by the United States Commission on Civil Rights (2020) indicated that women's prisons tend to have arbitrarily punitive regimes, which suggests that punitivity may be the accepted reality in women's prisons. Our study contributes to this conversation by explicitly linking the punitiveness of women's prisons to individual women's mental health.

Next, we found that a recent suicide in the prison is also negatively associated with individual mental health, which is consistent with the idea that suicides indicate a more deprived environment and can increase distress (Tartaro & Lester, 2009). Importantly, however, our study is the first to link the structural effect of a recent suicide in the prison to the individual mental health of incarcerated women. Finally, we found that higher program counts in the prison were associated with lower symptom counts, which is consistent with past findings that indicate a more diverse array of programs offered in the prison can improve mental health (Slotboom et al., 2011). This finding further reinforces the idea that prison programs are an important aspect of the prison experience.

In addition, our study also points to important associations between the individual life experiences of incarcerated women and their mental health. All individual level indicators except for race, unemployment before prison, and parental status were significantly associated with mental health symptom count. These findings are in line with past research on women in prison (Aday et al., 2014; Verona, Hicks, & Patrick, 2005) and are consistent with findings that women's pathways to prison often involve poor mental health (Kruttschnitt & Gartner, 2003). Our study is the first, though, to show that individual life experiences are associated with the mental health of incarcerated women, net of prison conditions measured at the institutional level. Indeed, there were no changes in significance for individual-level factors between model 1 and model 2. This expands previous literature on the association between individual factors and the mental health of incarcerated women by demonstrating the durability of the links between individual-level factors and mental health, even when including institutional-level variables. In all, this reinforces the importance of considering how the life experiences of incarcerated women frame their experiences while incarcerated.

Notably, our findings are in contrast to research on mental health among incarcerated men that accounted for both individual- and prison-level factors. One past study used data from the SISCF and the CCF to examine how prison- and individual-level factors were associated with symptoms of mental health among incarcerated men and found that overcrowding and activity deprivation were significantly associated with higher counts of mental health symptoms for men, net of individual characteristics (Edgemon & Clay-Warner, 2019). The differences between those findings for men and our findings for women may point to real differences between men's and women's prisons that cannot be captured by the variation in individual experience. This

further reinforces the notion that women's prisons are unique in many ways from men's prisons and demand further investigation at the structural level.

Thus, our findings suggest that certain aspects of the prison environment and certain prison conditions are associated with the mental health of incarcerated women. Here, we offer a more structural account of how the "gendered pains of imprisonment" might shape the experiences of incarcerated women that draws on the stress process model (Crewe et al., 2017). This is important in two respects. First, our study answers calls for more institutional-level investigations of women's prisons in order to understand how the environment of the prison impacts women's experiences, while still considering the importance of their individual histories and pathways to prison (Kruttschnitt & Gardner, 2003). Next, it emphasizes that there is, likely, a structural element to how prison deprivations impact mental health that goes above and beyond the subjective experiences of these deprivations, adding to the evidence that negative attribution bias alone cannot account for the mental health of incarcerated women (Slotboom et al., 2011) and offers support for a broader stress process theoretical mechanism linking certain chronic environmental prison conditions to the mental health of incarcerated women. In all, our analysis reinforces the idea that prisons are not monolithic and that certain aspects of the prison environment might be linked to the experiences of incarcerated women.

Practically, these findings highlight important policy considerations for women's prisons. First, our findings reinforce the need for gender informed mental health care that considers the unique pathways and experiences that bring women to prison (Kruttschnitt & Gardner, 2003). Further, we encourage prison administrators and correctional practitioners to consider how modifying aspects of the prison environment might benefit the overall mental health of women incarcerated within the prison. For instance, modifying the approach and application of prison

sanctions and reducing the overall punitiveness of the prison regime might benefit incarcerated women in particular. While these more structural level changes may take more time and effort to implement over changes that just target individuals, we believe that such changes would create improvements to the overall mental health of incarcerated populations.

Limitations and Directions for Future Research

While our research provides an important look at the connections between the prison environment and women's mental health, there are limitations that should be addressed in future research. Perhaps the most important limitation of this study is that neither the SISCF nor the CCF contains measures of self-reported mental health prior to incarceration. Thus, we cannot establish causal connections between prison deprivations and the self-reported mental health of incarcerated women. However, we limited our analysis to women who have been incarcerated in a particular prison for at least one year. Thus, our measures of prison deprivations clearly precede the mental health symptoms reported at the time of survey. We also control for a large number of factors that predispose one to poor mental health, though we cannot make claims about changes in mental health over time.

Next, because our measures of prison deprivations are limited to those available in the CCF, we were unable to include some potentially relevant prison characteristics. In particular, the CCF does not contain measures of social support within the prison, measures of victimization experienced by individuals while incarcerated, or perceptions on the utility of programs offered in the prison. Previous research on women in prison suggests that the social connections and support that incarcerated women offer each other is important for the overall prison experience (Mears et al., 2012; Wood & Grasmick, 1999), while other research suggests that experiencing traumatic events while incarcerated could negatively impact mental health (Toch & Kupers,

2007). Further, the perceived usefulness of prison programs likely moderates the effect of program participation on mental health. The inclusion of these variables, and the interactions of these variables with prison conditions, would help to provide a more complete view of incarcerated women's mental health.

Finally, there were data limitations presented by utilizing two separate datasets. For one, limitations in merging the datasets unfortunately required dropping cases where individuals in the SISCF could not be matched with prisons in the CCF, potentially biasing the results of the analysis. Next, data reported in the CCF are from the year 2000, while survey data are from 2004. Thus, it is possible that prison conditions changed in the four years between the two data collection points. However, it is likely that, given the static nature of the modern prison system, these institutions did not undergo fundamental structural change that would transform the institution in a matter of four years. In fact, some deprivations were more likely to have increased rather than decreased. For example, punitive regimes and overcrowding are unlikely to have been dramatically reduced within four years, especially given that the American prison boom was at its height when data were collected (Clear & Frost 2014). Indeed, it is likely that these institutions became more overcrowded and more punitive in the four years between the two data collection points.

Despite these limitations, our study offers a unique perspective on the mental health of incarcerated women. Our findings contribute to previous literature concerning women in prison by demonstrating how punitive prison regimes and other deprivations might negatively impact the mental health of incarcerated women. This is also one of the first studies to combine both individual- and prison-level variables in a sample of incarcerated women. By analyzing which prison characteristics are associated with higher levels of mental health concerns net of

individual-level factors, we highlight the role that prison structure may play in women's wellbeing while incarcerated and, more generally, the relationship between social structure and women's mental health.

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Table 1. Descriptive Statistics – Means (SD), and Proportions

Race	
White	0.47
Black	0.42
Other	0.11
Age	36.0 (9.93)
Physical Abuse	0.50
Sexual Abuse	0.44
Unemployed	0.39
Homeless Before Prison	0.12
Alcohol Dependence	0.17 (.31)
Substance Abuse	0.31 (.35)
Parent	0.80
Solitary Confinement	0.11
Rule Violations	0.50
Punishment Ratio	0.19 (.74)
Work Assignment Ratio	0.65 (.33)
Minimum Security Level	0.77
Overcrowding	0.00 (1)
Program Count	13.35 (2.73)
Recent Suicide in Prison	0.10
Visitation	0.07
Harsh Conditions	0.43
Symptom Count	6.41 (4.01)
Final Sample of Inmates	n=1,490
Number of Prisons	n=60

Table 2. Negative Binomial Multi-Level Model Results

	Model 1 Incidence Rate Ratio (IRR)	Model 2 (Full Model with level 2 variables)
Level 1 - Individual		
Physical Abuse	1.23**	1.23**
Sexual Abuse	1.31**	1.33**
Age	0.99**	0.99**
Black	1.18	1.19
Other	1.13	1.14
Unemployed	1.09	1.06
Homeless	1.10*	1.12*
Alcohol Dependence	1.27**	1.27**
Substance Abuse	1.37**	1.39**
Parent	1.03	1.01
Solitary Confinement	1.24**	1.23**
Rule Violations	1.19**	1.22**
Level 2 - Prison		
Punitiveness	-	1.11*
Program Count	-	0.97+
Suicide	-	1.22*
Minimum Security	-	1.04
Overcrowding	-	1.01
Work Assignments	-	1.02
Visitation	-	1.04
Harsh Conditions	-	1.07

n=1,490; + p<.10; * p<.05; ** p<.01