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Risk Factors for Homelessness and Sex Trade Among Incarcerated Women: A Structural Equation Model

By Seijeoung Kim¹, Timothy P. Johnson², Samir Goswami³, Michael Puisis⁴

Abstract

Incarcerated women are among the most vulnerable and perhaps the least studied populations in the US. Significant proportions of female inmates are substance users, and many living in unstable housing conditions or being homeless. Female inmates are often at high risk of engaging in sex exchange for drugs or housing needs. While a disproportionate number of incarcerated women have experienced childhood household adversities and maltreatments, the effects of these childhood experiences on psychosocial and behavioral outcomes of this population in later life. We apply a life course perspective to examine these pathways in a sample of incarcerated women in Cook County, Illinois. Findings demonstrated lasting, but differential, effects of household adversities and childhood abuse on subsequent life risks and opportunities among these women.

Keywords: homelessness, sex-trade, structural equation model

Introduction

In recent years the number of incarcerations in the US has increased dramatically, from under 200,000 in 1970 to over 2 million in 2008 (Couture & Sabol, 2008). While the proportion of women in the incarcerated population is still small, at about 7%, the number of female inmates in state and federal correctional facilities (66.7%) has grown faster than the number of male incarcerations (42.8%) between 1995 and 2007 (Kruttschnitt, Gartner & Hussemann, 2008; West & Sabol, 2009). Incarcerated women are disproportionately affected by a myriad of health issues, such as substance abuse, HIV infection, and other sexually transmitted diseases (Hammett, Harmon, & Rhodes, 2002; National Commission on Correctional Health, 2002; Puisis, Levine, & Mertz, 1998). In fact, the HIV prevalence rate is higher among women compared to men in correctional settings (Harrison & Beck, 2005). In 2008, 1.9% of women compared with

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1.5% of men in state and federal prisons were HIV positive (Maruschak, 2009); and 2.3% of female and 1.2% of male jail inmates had HIV in 2002 (Maruschak, 2006).

Women in jail

Female inmates are more likely than male inmates to be substance dependent or abusers (52% vs. 44%) (Harrison & Beck, 2005; Karberg & James, 2005; Mumola & Karberg, 2006). Specifically in Chicago, over 80% of women in a county jail reported a history of substance use (Chicago Coalition for the Homeless [CCH], 2002). A disproportionate number of incarcerated women engage in sex trade to meet their drug or survival needs. Raj and colleagues (2006) found that 31% of women incarcerated in the Rhode Island Department of Corrections had ever been arrested for sex trade. Similarly, over 40% of women in the Cook County Department of Corrections reported that they have engaged in prostitution (CCH, 2002). Women who engage in sex trade are also more likely to be homeless and to have a history of incarceration (Lehmann, Kass & Drake, 2007; Weiser et al., 2006). In fact, women often engage in prostitution for shelter, drugs, and other survival needs (CCH, 2002; Weiser et al., 2006).

Typically, incarcerated women are poor and unemployed (CCH, 2002; Greenfeld & Snell, 2000). Incarcerated individuals often live in unstable housing or are homeless (Greenberg & Rosenheck, 2008). One survey conducted in Chicago found that over 50% of women in a local jail were living in unstable housing or were homeless prior to incarceration (James, 2004). A high rate of shelter use is also reported among ex-offenders released from correctional facilities (Metraux & Culhane, 2006; Travis, 2007). A study documented that 12% of persons released from New York State Prison experienced a shelter stay within two years following release (Kuno, Rothbard, Averyt & Culhane, 2000). Similarly, significant proportions of homeless individuals also spend time in jails and prisons (Booth, Sullivan, Koegel & Burnam, 2002; Folsom et al., 2005; Johnson & Young, 2002; Reback, Kamien & Amass, 2007).

Moreover, studies have found that a large proportion of incarcerated women have experienced childhood abuse (Browne, Miller & Maguin, 1999; Gilfus, 1992). According to the Bureau of Justice Statistics, 31.7% of women in state prisons have been physically or sexually abused before age of 18 (Snell, 1994). Interestingly, studies have also documented that women who engage in sex trade are more likely to have a history of childhood violence such as emotional, sexual, or physical abuse (Boney-McCoy & Finkelhor, 1996; Wyatt, Guthrie & Notgrass, 1992). Similarly, Covington and Kohen (1984) argue that women with substance abuse problems have higher rates of physical, sexual, and emotional abuse during childhood than non-abusers. Kendler and colleagues (2000) reported similar findings where as many as 62%–81% of adult women in drug treatment programs have been victimized by childhood abuse.

Clearly, these problems do not occur in isolation. Incarcerated women are exposed to multiple risks over their life course, and cumulative effects of these life events may shape pathways leading to adulthood life circumstances. Understanding the processes that link their various social and health outcomes requires a comprehensive framework which may help explain particular life trajectories leading to adulthood adversities.

Life course approach

Although the associations between childhood adverse experiences and adulthood outcomes have been well documented (Edwards, Halpern & Wechsberg, 2006; Finkelhor & Browne, 1985; Kendler et al., 2000; Putnam, 2003; Wechsberg et al., 2003), the specific mechanisms by which adverse childhood events influence outcomes in later life, are relatively unexplored (Kendall-Tackett, 2002; Springer, Sheridan, Kuo & Carnes, 2003). Particularly concerning incarcerated women, the life course approach may help better conceptualize disproportionate exposure to childhood risks and adulthood adverse outcomes in this population. The life course has been defined as "pathways through the age differentiated life span" (Elder, 1985), in which the course of life events over time shape particular life transitions and trajectories (Elder, 1985; Kawachi, Kennedy & Wilkinson, 1999; Settersten, 2003). The life course perspective examines the consequences of one's life experiences as processes within life context (Bengtson & Allen, 1993). Early childhood factors such as experiencing abuse or witnessing violence set in motion particular life-course trajectories, and determine exposure to risks, including school failure, substance use, or delinquency (Bolger & Patterson, 2001; Cicchetti & Toth, 2005; Pulkkinen & Tremblay, 1992). The exposure to these risks may increase the likelihood of engaging in illicit activities during their adulthood, leading to an increased risk of incarceration (Hall, 2000; Horwitz, Widom, McLaughlin & White, 2001; Min, Farkas, Mommers & Singer, 2007; Widom & Kuhns, 1996).

Childhood adverse events may affect later-life outcomes, primarily by influencing education and the socioeconomic opportunities (Crimmins & Saito, 2001; Mirowsky & Hu, 1996; Ross & Wu, 1995). Children who experience childhood maltreatment are more likely to fail in school or even school dropout, which limits one's life chances, thereby increasing risks for adverse outcomes during adulthood (Kinard, 1999; Miech & Hauser, 2001; Solomon & Serres, 1999). For example, studies have found that neglected children perform worse on academic tasks than non-neglected children (Kendall-Tackett & Eckenrode, 1996; Slade & Wissow, 2007). These studies further conclude that because of lower educational attainment, children with history of abuse are more likely than those without to have increased risk of school dropout and worse economic outcomes in adulthood (Fang & Tarui, 2009; Hall, 2000; Kendall-Tackett & Eckenrode, 1996; Macmillan, 2001). Widom and colleagues have documented that women who experienced childhood abuse have shown increased risk of engaging in risky sexual behaviors (Widom, 1989; Widom & Kuhns, 1996). Silbert (1981) reported that 78% of women reported starting prostitution as juveniles, and often had a history of childhood sexual abuse; and 77% of these women reported that the sexual abuse affected their decision to be involved in prostitution.

Childhood abuse may also influence later life by increasing risk of psychiatric disorder in young adults (Fergusson, Horwood & Lynskey, 1996). Silverman and others found that 80% of abused young adults had one or more psychiatric disorders. When compared to their non-abused counterparts, abused individuals showed higher rates of mental health problems, including depression, anxiety, emotional-behavioral problems and suicide attempts (Silverman, Reinherz & Giaconia, 1996).

Parental involvement may also affect children's school performance and behaviors (Coley & Chase-Lansdale, 1998; Goebert et al., 2004; Murray & Farrington, 2005). Studies have documented that parental participation in the educational processes

and experiences of their children increased academic measures including grades, teacher rating scales, academic attitudes, and behaviors (Jeynes, 2007; Patall, Cooper & Robinson, 2008). Parents who have drug problems or who are incarcerated may not be involved in child's school activities. For example, Dube and colleagues (2003) found that having a household member with mental illness or having an incarcerated household member increased the odds of initiating drug use by 1.9 times. Children of incarcerated parents are a highly vulnerable group with multiple risk factors for adverse outcomes. Studies suggest that the accumulative effect of these family risk factors may affect children's adjustment (Hetherington, Bridges & Insabella, 1998; O'Conner, Dunn, Jenkins, Pickering & Rasbash, 2001; Stanton-Chapman, Chapman, Kaiser, & Hancock, 2004). Similarly, Murray and Farrington (2005) documented that having incarcerated parents increased the risk of child's delinquency.

In summary, disadvantage accumulates over time through a series of life events among incarcerated women. The life course approach may help conceptualize ways in which this myriad of co-occurring socio-behavioral conditions, such as childhood abuse, adverse parental events, substance use, economic disadvantage, and risky sexual practices, are associated and differentiate their social and health related trajectories. In particular, these cumulative disadvantages may limit women's life chances, contributing to negative social, economic, and behavioral outcomes (O'Rand, 1996).

Methods

Research question

The purpose of this study is to examine how undesirable childhood experiences affect current life conditions among incarcerated women. We modeled potential pathways between childhood experiences (parental characteristics and abuse experience) and adulthood outcomes (sex trade, homelessness, and incarceration), using structural equation models. Educational attainment and employment status were examined as mediators of the impact that childhood abuse adverse events has on adult homelessness, sex trade, and repeat incarceration. We hypothesize that children growing up in disadvantaged households may be more likely to be exposed to childhood sexual and/or physical abuse, and that these experiences affect individual abilities to accumulate social and human capital: education, employment, and social support networks. These disempowering life circumstances may in turn precipitate psychosocial, economic, and behavioral issues such as substance abuse, homelessness, prostitution, and incarceration.

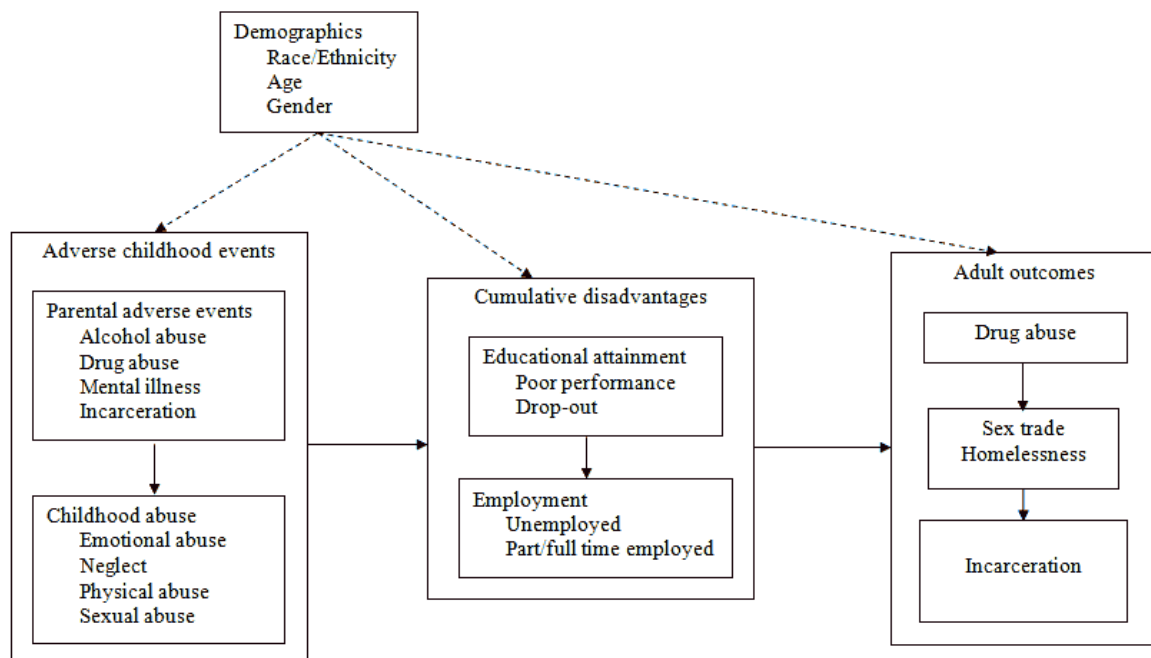
Model

Figure 1 depicts a conceptual model explaining the relationships between childhood experiences, cumulative disadvantages, including lack of educational attainment, severity of drug abuse, and repeat incarceration, and adult outcomes, including employment status, homelessness, and involvement with sex trade among incarcerated women. Utilizing the life course perspective, we hypothesize that parental adverse events such as parents' alcohol abuse, drug abuse, mental health problems, and incarceration increase the risk of experiencing childhood abuse including neglect, emotional, physical, or sexual abuse. History of parental adverse events and childhood abuse would then negatively affect women's educational attainment, which then would limit employment opportunities. Parental and childhood adverse experiences may also

increase the risk and severity of drug abuse. We assume that the severity of drug use and educational attainment are correlated, although it may be difficult to determine the direction of this relationship.

We also predict that those who had a history of parental and childhood adverse events would be more likely to be incarcerated. Employment status is affected by the level of educational attainment. Women’s drug use behavior may also limit the probability of being employed. Finally, adulthood outcomes, homelessness and engaging in sex trade, would be directly and indirectly affected by childhood experience, cumulative disadvantage, and current employment status. In addition, race/ethnicity and age are expected to influence the life trajectories and outcomes, thus need to be controlled for.

Figure 1. Conceptual model



Dataset

We utilized an existing survey data collected from 235 women detained in the women’s divisions in Cook County Jail, Chicago, IL. The protocol for the secondary analysis of these data was reviewed and approved by the institutional review board (IRB) of the University of Illinois at Chicago. The original survey was conducted in 2001 by the Chicago Coalition for the Homeless (CCH). The survey was based on a total of 235 women (21%) who were sampled from a population of 1,117 women housed in the women’s divisions in the Cook County Jail on October 31, 2001. Female inmates were invited to participate in the survey, and those who volunteered were randomly sampled to participate. Interviewers then called the number for the survey. Consent was obtained prior to the survey, informing participants concerning the voluntary nature of the study, providing assurances of confidentiality, and an acknowledgement that participation

would not affect the disposition of their current charges. Trained volunteers and the CCH staff conducted the survey, which took 15-30 minutes (CCH, 2002).

Setting

The Cook County Jail is the largest single-site jail in the US. Between 1995 and 2004, there were over 875,000 incarcerations involving 389,532 individuals, with an average of over 97,000 incarcerations per year within this facility (unpublished preliminary study by the authors). Of those, 63% were African Americans, 17% were Hispanic, and 19% were non-Hispanic white. The proportion of women in the inmate population increased modestly from 14% in 1996 to 16% in 2004. On average, the jail makes over 16,000 female incarcerations per year.

Measures

We examined two adulthood outcome variables: current homelessness and involvement in sex trade. Current homelessness was a dichotomous variable indicating whether a woman was homeless during the 30 days before the index incarceration. Current engagement in sex trade, a dichotomous variable, indicated whether a woman had engaged in sex trade, such as street work, stripping, escort services, sex tours, trafficking, and survival sex, during the 30 days before the index incarceration.

Childhood adverse events were a set of dichotomous variables including: 1) having parent(s) who were alcohol abusers, 2) who were drug abusers, 3) who had mental health problems, 4) who had history of criminal justice involvement, 5) having been neglected, 6) been emotionally, 7) physically, and 8) sexually abused during childhood. Using these eight observed variables, we measured two latent variables: parental adverse experience (1-4 indicators) and childhood abuse history (5-8 indicators).

Cumulative risk measures were: educational attainment, drug use severity, repeat incarceration, and employment status. Educational attainment was an ordinal variable with five educational levels (elementary only, some high school, high school graduated, some college, and college graduated). Drug use severity measure was a three ordinal category variable (never used drugs, used drugs, and had been admitted to hospital or treatment program due to drug problems). Repeat incarceration was a continuous variable measuring the total number of incarcerations. Employment status was an ordinal variable (unemployed, employed part time, and employed full time), measuring current employment status during the 30 days before the index incarceration.

Age and race/ethnicity were controlled for, since predictors and outcome variables may potentially associated with women's age and/or ethnicity. Age was a continuous variable and race/ethnicity was a dichotomous variable indicating being African American (vs. other).

Analysis

The analysis included all 235 responses from the original survey. Statistical software SPSS and LISREL 8 were used for the analyses. First, descriptive statistics were used to explore demographic, socioeconomic, and incarceration related characteristics of incarcerated women in the sample. Second, a structural equation model (SEM) was used to fit the conceptual model (Figure 1) and to explore direct and indirect effects of childhood events and cumulative disadvantages, predicting women's current

homelessness and sex-trade involvement. SEM is a useful tool to examine the appropriateness of theoretically drawn relationships using empirical data (Bentler & Stein, 1992). LISREL (Joreskog & Sorbom, 1996a) uses maximum likelihood methods providing chi-square and goodness of fit statistics that test the overall discrepancy between the data and the proposed conceptual model, by comparing the sample covariance matrix and the matrix reproduced by the parameters estimated in the model. If these matrices are not significantly different, the model can be considered to be a good representation of the data. Since variables used in the model were categorical, PRELIS 2 was used to create a heterogeneous matrix of polychoric correlations (Joreskog & Sorbom, 1996b).

First, a measurement model was tested for the latent variables. As stated, we assumed two associated latent variables (parental adverse events and adverse childhood experience), each of which was measured with four observed variables listed above. We then used the two latent variables to test the hypothesized model. The goodness of fit of the conceptual model was appraised with the robust comparative fit index (RCFI) and the root mean squared error of approximation (RMSEA). The RCFI, ranging from 0 to 1, reflects the improvement in fit of a hypothetical model over a model of complete independence among the measured variables (Bentler & Stein, 1992). The RMSEA indicates a reasonable error of approximation, and the model chi square statistic examines whether there is a significant difference between the model and the data (Browne, Cudeck, Bollen & Long, 1993). Good models have an RMSEA of .05 or less, and models with .10 or more have poor fit (Browne et al., 1993). A parsimony index for the models is also provided. The Akaike Information Criterion (AIC) evaluates baseline independence models that assume no relationships among the variables with parsimonious models. Another index for the level of goodness of fit is the Chi-square (χ^2) to degrees of freedom (df) ratio. Lower values (generally smaller than 2) of χ^2 /df ratio are considered to be a better fit between the model correlation matrix and the actual correlation matrix.

Results

The sample included 71.9% African American, 10.8% White, 6.9% Hispanic, and 10.4% other ethnic women (Table 1). The mean age was 35.7 years old ($SD=8.9$). More than 65% of women reported that their parents had problems with alcohol, drug abuse, mental health problems, or incarceration. Fifty nine percent of women had a history of childhood abuse. More than 46% of women had less than high school education (or GED). Similarly, 56.8% were unemployed, and an additional 18% were employed part time. Nearly 50% of women reported that they had been previously admitted to a treatment facility for drug problems. More than 44% ever engaged in sex trade for money or other needs, 37% said they trade sex to meet their needs regularly, and 26% traded sex 30 days before incarceration. Nearly 32% were homeless or lived in unstable housing conditions, and 34% expected that they would be homeless upon release. On average, women had been incarcerated 4.9 times ($SD=7.0$).

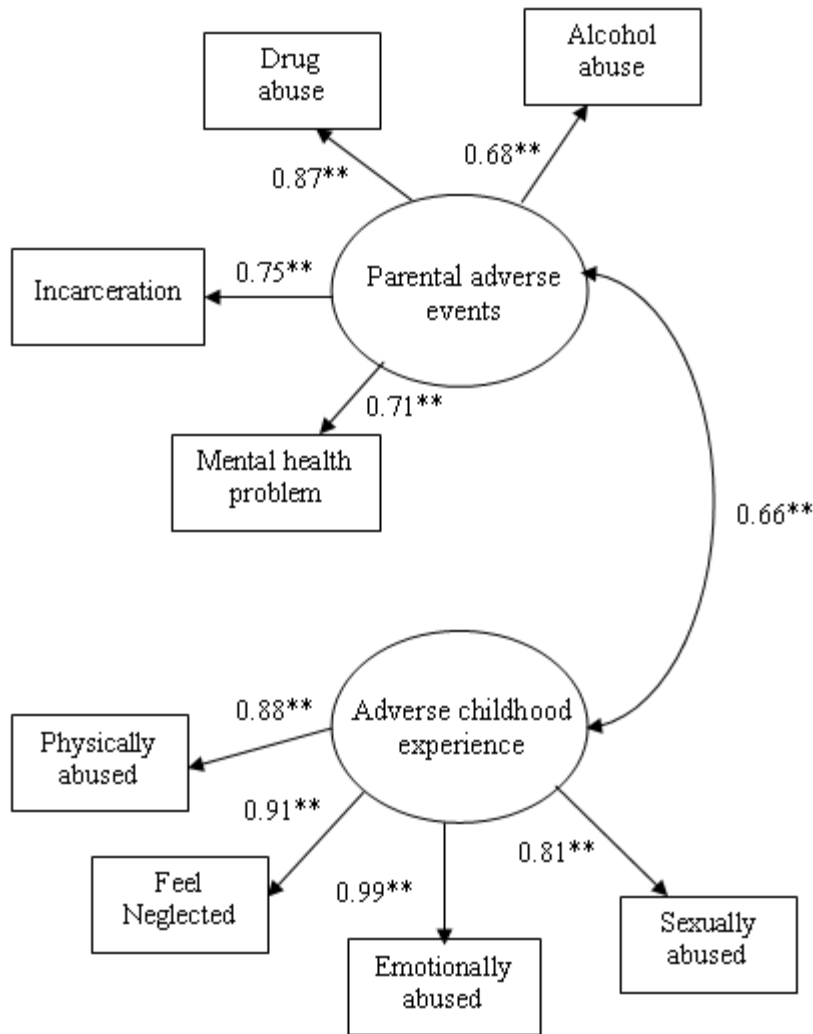
Table 1. Sample characteristics (N=235)

	N (%)
Race/Ethnicity	
African American	166 (71.9)
White American	25 (10.8)
Other	40 (17.3)
Age	
< 25	31 (13.6)
25-34	79 (34.6)
35-44	79 (34.6)
> 45	37 (17.1)
Parental adverse events	
Alcohol abuse	125 (53.9)
Drug abuse	62 (27.0)
Mental health problem	61 (27.0)
Incarceration	54 (23.6)
Childhood abuse history	
Emotional	116 (49.8)
Neglect	107 (45.9)
Physical	88 (37.8)
Sexual	88 (37.9)
Education	
Some high school or less	108 (46.4)
High school graduate	75 (32.2)
Some college	39 (16.7)
College graduate	11 (4.7)
Employment	
Unemployed	130 (56.8)
Part time	42 (18.3)
Full time	57 (24.9)
Drug problem severity	
Ever used	200 (86.0)
Admitted to treatment facilities	107 (49.8)
Sex trade	
Ever	101 (44.7)
30 days prior incarceration	60 (26.3)
Homeless	
30 days prior incarceration	66 (31.6)
Expect to be upon release	79 (34.3)
Number of incarcerations*	4.9 (7.0, 1-60)

* Mean (SD, range)

Figure 2 shows the results of the measurement model that developed the two latent variables. Several measures confirmed that the fit of this model was satisfactory. The chi-square statistic for the maximum likelihood of the full model was 29.01 ($p = 0.07$) with degree of freedom = 19, with a χ^2/df ratio = 1.53. In addition, the RMSEA for the model was an acceptable 0.067 (CI, 0.0, 0.08), with model AIC = 63.01 and AGFI = 0.99.

Figure 2. Latent variables model, completely standardized solution



* $p < 0.05$; ** $p < 0.01$

We then fitted the structural equation model using these two latent variables and the observed measures of the other variables of interest. Table 2 summarizes the unstandardized coefficients and standard errors for the covariance structure model. Race and age were controlled for in this model. The overall model showed an excellent fit: goodness of fit index (GFI) = 1.00, RCFI $\chi^2 = 0.48$ ($p=1.0$) with degree of freedom = 6, with a χ^2/df ratio of 0.08, RMSEA = 0.0 with 90% CI (0.0, 0.0), independence model AIC = 516.74, and model AIC = 98.48. Figure 3 depicts the results of the structural

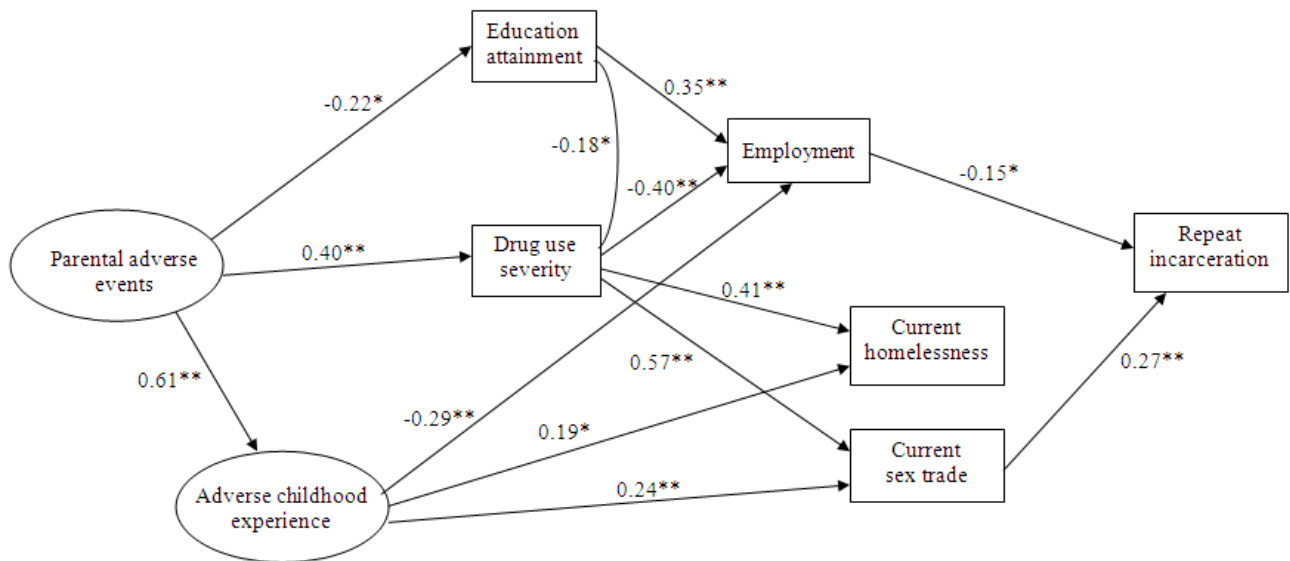
equation model. Significant associations in the model are shown with solid lines (non-significant associations are not shown), along with coefficients and standard errors.

Table 2. Unstandardized coefficients (standard errors) for the covariance structure model (N=235)

Independent Variable	Dependent Variable				
	Childhood abuse history	Education	Drug problem severity	Current employment	Current sex trade
Parents' adverse experience	0.61** (0.08)	-0.22* (0.11)	0.39** (0.12)	0.26 (0.13)	-0.08 (0.10)
Childhood abuse history		0.14 (0.09)	-0.003 (0.09)	-0.29** (0.10)	0.24** (0.09)
Education			-0.18* (0.07)§	0.35** (0.08)	
Drug problem severity		-0.18* (0.07)§		-0.40** (0.10)	0.57** (0.12)
Current employment					-0.03 (0.12)
Current sex trade					
Current homelessness					-0.02 (0.10)§
Number of incarceration					
African American (vs. other)	-0.16** (0.04)	0.02 (0.11)	-0.12 (0.11)	-0.12 (0.10)	-0.05 (0.13)
Age		0.11 (0.07)	0.09 (0.21)	-0.16* (0.07)	0.01 (0.07)
Error variance	0.57** (0.11)	0.95** (0.07)	0.83** (0.09)	0.63** (0.10)	0.57** (0.10)
R ²	0.43	0.05	0.17	0.37	0.43
RMSEA (90% CI)	0.0 (0.0; 0.0)				
χ^2 (RCFI)	0.48 (p=1.00), df=6; $\chi^2/df = 0.08$				
Independence model AIC / Model AIC	516.74 / 98.48				
Goodness of fit (GFI) / Adjusted GFI	1.00 / 1.00				

* p<0.05; ** p<0.01; § Error covariance.

Figure 3. Structural equation model and completely standardized coefficients (shown significant paths only)



* $p < 0.05$; ** $p < 0.01$; Controlled for being African American and age

Consistent with the conceptual model (Figure 2), the SEM model shows that women with parents who had adverse events were more likely to experience childhood abuse. Having parents with adverse events was negatively associated with educational attainment, but childhood abuse history did not have a significant effect on education level. Education level and drug use severity were negatively correlated. Having parents with adverse events, but not childhood abuse, was positively associated with drug use severity. Employment status was positively associated with education level, negatively associated with drug use severity and childhood abuse history. Both current homelessness and sex trade were positively associated with drug use severity and childhood abuse history, but not with parental adverse events, nor with employment status. Finally, repeat incarceration was negatively associated with employment and positively associated with current sex trade. Drug use severity did not have direct effect on repeat incarceration, but indirect effects through employment and sex trade.

Discussion

The study results showed that childhood adverse experiences had direct or indirect effects on each cumulative disadvantage measure and adulthood outcome. Interestingly parental adverse events had stronger effects on more immediate outcomes, such as education and drug abuse estimates; while childhood abuse history on more remote adulthood outcomes such as employment, homelessness, and sex trade. This finding suggests that growing up with parents who had their own issues affected

women's initial paths into high risk life contexts such as being exposed to childhood abuse, lack of education, and drug use. This supports previous findings regarding associations between household characteristics and school achievement in which parental involvement in children's education has been shown to influence school performance and substance use behavior (Dannerbeck, 2005; Gonzalez-DeHass, Willems & Holbein, 2005). Previous studies suggest that parental incarceration and substance use may create household environments in which there is reduced adult supervision that can negatively affect children's learning experiences and increase risks. The relative absence of parental involvement may also increase children's exposure to risky social environments in which there are fewer disincentives to illicit behaviors such as substance use.

Abuse childhood experiences, on the other hand, appear to have longer term direct effects on women's adult conditions, such as employment opportunities, homeless experiences homeless and engaging in sex trade. Studies have suggested that individuals with a childhood abuse history appear to develop symptoms indicating posttraumatic stress disorder (PTSD) (Adams & Boscarino, 2006; Cohen, Deblinger, Mannarino & Steer, 2004). These studies report that childhood traumatic experiences alter children's coping and emotional functioning. This finding may explain delayed effects of childhood abuse experiences in our study. Incarcerated women with childhood abuse experience may suffer from lingering emotional and psychosocial effects of PTSD due to childhood trauma (Bloom, Owen & Covington, 2003; Cohen, Mannarino & Knudsen, 2005; Pollack & Brezina, 2006; Zlotnick, Najavits, Rohsenow & Johnson, 2003). These studies consistently report that women with PTSD are more likely to exhibit low self-esteem, depression, and other mental health problems, and consequently experience functional difficulties. Co-occurring conditions of PTSD also often include adulthood sexual victimization, substance abuse, and incarceration (Centers for Disease Control and Prevention, 2006; Felitti et al., 1998; Wechsberg et al., 2003). These findings imply potential mediating effects of psycho-social conditions between childhood abuse and adult adverse outcomes. These were not examined in our study, and will require further research. Obviously, parental adversity and childhood abuse experiences are closely associated, and differential effects of these childhood events warrant further research.

In addition, our finding regarding parental adverse events has an additional implication for children of incarcerated women, considering over 80% of female inmates are mothers of dependent children. The intergenerational impact of women's experience with substance use, incarceration, and the psychosocial consequences is dire (Dellaire, 2007; Huebner & Gustafson, 2007; Mumola, 2000; Poehlmann, 2005; Travis & Waul, 2003). The potential for inter-generational cycles of substance abuse and incarceration needs to be further explored.

Our study findings are particularly important, given that the effects of childhood adverse events were demonstrated among incarcerated women, who are a highly homogenous group of disadvantaged individuals. Incarcerated individuals are already marginalized and living in disadvantaged neighborhoods. And incarceration may damage social and human capital. With an often severe lack of resources, incarcerated individuals may be forced further into illicit activities in order to survive. This may explain high rates of homelessness and sex trade among incarcerated women. Our findings suggest that recidivism may be at least in part a function of economic difficulties. Women who were unemployed and engaged in sex trade were more likely to

have been incarcerated multiple times.

Having severe drug abuse problems also seems to affect a myriad of adulthood exposures to disadvantages, including lack of employment, homelessness, and sex trade, each of which in turn may increase the likelihood of recidivism. This highlights the significance of drug abuse among incarcerated women. Many researchers have asserted that substance abuse treatment plays a critical role in interventions for the incarcerated population (Belenko, 2006; Bouffard & Taxman, 2000; Johnson, 2006; Severance, 2004). Providing effective substance abuse treatment programs would seem to be a key element to securing jobs, reducing homelessness, risky sexual behaviors, and recidivism.

The life course perspective provides a unique approach to better understand the long lasting cumulative effects of negative life experiences on future disadvantages among incarcerated women. Female inmates' exposure to adverse life events in early life may initiate trajectories that help explain current life contexts. The life course perspective may also be particularly important in designing interventions for incarcerated women. Interventions focusing on cross sectional views of risk exposure may exclude important aspects of the cumulative life experiences that shape the contemporary life contexts of these women.

Limitations

Although our findings help provide a better understanding of female inmates' experiences of adulthood homelessness and survival sex, several limitations exist in this study. First, the study was cross-sectional, and information regarding childhood experiences was collected retrospectively. There is always a threat of recall bias with retrospective data collection (Chouinard & Walter, 1995; Hassan, 2006). Such bias could operate in several directions, as some women might have more readily remembered their more traumatic experiences, while others might have suppressed their most painful memories, resulting in under-reporting of some experiences. To minimize this threat, we developed a path model to more closely approximate temporal associations by using only questions that had obvious temporal relationships, such as childhood experiences vs. current conditions. However, the inherent limitations of these data could not be entirely eliminated.

Second, selection bias might be present, since survey respondents in the original survey were a sample of volunteers. Therefore, the sample may be less representative of general incarcerated women. Those who decided to participate in the study may have been physically healthier or less depressed; also, it is plausible that those who felt that they might be stigmatized if they reported their experiences might have been less likely to participate in the survey. However, compared to the characteristics of incarcerated women in Cook County Jail, the potential selection bias may be less prominent. Compared to the national level report on incarcerated women, our sample seems to be fairly representative of incarcerated women in general. Overall in 2005, for example, 72% of incarcerated women were African American, which was close to our sample, of which 72% was African American. Similarly, the median age of the sample was 35 years old, and the overall median age of all women incarcerated during 2005 was 34.8 years. Moreover, according to the Bureau of Justice Statistics (Snell, 1994), 53.3% was unemployed (compared to 56.8% in our sample) and 55% had high school or more education (compared to 53.6% in our sample).

Third, the survey data is self reported information that is subject to social desirability bias problems; respondents might have under-reported what they perceived to be undesirable answers or over-reported what they wanted to highlight. No research, however, has reported that this type of bias is more prevalent among incarcerated individuals than in the general population. For example, Nelissen (1998) concluded that there was little evidence of social desirability bias in self-reported opinions about correctional facilities. Similarly, Heimer and others (2005) found that the discrepancy between self-reported illicit drug use and actual urine testing among prison inmates was not considerable. However, further research is needed on this topic.

Conclusion

Despite these limitations, our findings provide valuable empirical evidence regarding the associations between the childhood and later life experiences of incarcerated women. These findings provide evidence regarding pathways by which childhood household characteristics may affect women's risk of childhood abuse experiences and subsequent life experiences. As hypothesized, childhood environment may be associated women's life conditions, and also increase the likelihood of experiencing childhood physical and sexual abuses. The study results are particularly noteworthy, considering the fact that the association was evident within this highly disadvantaged population.

Incarcerated women suffer from poverty and lack of life options, in which they are exposed to multiple risks. These issues tend to cluster in certain populations and neighborhoods, sharing common contributing factors that are deeply embedded in these women's life contexts. Thus, interventions are necessary to address multiple issues, including socioeconomic disparities and other co-occurring conditions. Without a stable means to meet their survival needs, reducing health risks may not become a high priority. Currently, discharge planning or service linkages for incarcerated women are severely lacking (Baskin, Braithwaite, Eldred & Glassman, 2005; Freudenberg, Daniels, Crum, Perkins & Richie, 2005; James & Glaze, 2006; Vlahov & Putnam, 2006). When they are released without any provision, these women often have no other option but to return to the high risk environment and behaviors that initially led to their incarceration. In addition, incarceration may exacerbate women's conditions, disrupting already frail support and resources by removing women from their social networks and support systems.

To effectively improve the health outcomes of incarcerated women, and to reduce recidivism, therefore, interventions need to address these complex and difficult life experiences. The successful reintegration of inmates into the community is hampered by lack of discharge planning (Lam, Wechsberg & Zule, 2004; Robertson et al., 2004), which may help inmates overcome barriers and prepare clear and practical action plans as to how to obtain community resources that may smooth their reintegration into the community.

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