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Early age at childhood parental incarceration and STI/HIV-related drug use and sex risk across the young adult lifecourse in the US: Heightened vulnerability of black and Hispanic youth

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ABSTRACT

Background: We measured associations between parental incarceration and STI/HIV-related drug use and sex risk, assessing differences by race, age at first parental incarceration, and potential mediators of the relationship.
Methods: We used Waves I (adolescence), III (young adulthood), and IV (adulthood) of the National Longitudinal Study of Adolescent to Adult Health (n = 11,884) to measure associations between age of parental incarceration (never; < 8; 8–17; ≥18 years old) and marijuana and cocaine use, multiple partnerships, and STI in adolescence and adulthood among white, Black, and Hispanic participants and assessed mediation by sexual and physical abuse, mental disorder symptoms, and drug use.
Results: By Wave IV, approximately one in six had experienced a parental incarceration; higher prevalence observed among black (26%) and Hispanic (20%) versus white (15%) respondents ($p < 0.0001$). Parental incarceration at any age was moderately to strongly associated with STI/HIV risk outcomes. In multivariable models, parental incarceration at age < 8 years old (versus never) remained strongly associated with STI/HIV risk in both adolescence and adulthood, with strongest associations among non-whites. Among black participants, parental incarceration at < 8 years old was associated with over double the odds of adulthood use of marijuana (adjusted odds ratio (AOR): 2.53, 95% confidence interval: 1.62, 3.95) and cocaine (AOR: 4.41, 95% CI: 2.05, 9.48). Delinquency, drug use, and mood disorders appeared to partially mediate the relationship.
Conclusions: Children impacted by parental incarceration constitute priority populations for substance use and STI/HIV prevention and treatment. The unintended consequences of incarceration for children should be considered in decarceration discussions.

1. Introduction

Sexually transmitted infection (STI) and HIV persist as critical threats to population health in the US (Centers for Disease Control and Prevention, 2015b) with adolescents and young adults at greatest risk (Centers for Disease Control and Prevention, 2012, 2014b). Black and Hispanic youth are disproportionately infected (Centers for Disease Control and Prevention, 2014b, 2015a). The racial/ethnic disparity emerges in adolescence and widens through the young adult period (Centers for Disease Control and Prevention, 2014a). Substance use is a critical behavioral determinant of STI/HIV sex risk (Cook and Clark, 2005; Hutton et al., 2005; Khan et al., 2013). There remains a need to identify the upstream factors that contribute both to STI/HIV-related substance use and sex risk.

Incarceration of a parent may constitute an important social determinant of STI/HIV risk given the unacceptable rate of incarceration in the US (Bureau of Justice Statistics, 2015) and that half of inmates are parents (Bureau of Justice Statistics, 2010). Parental incarceration may have particularly important implications for non-white children due to the marked racial/ethnic disparity in incarceration; though blacks comprise only 13% of the US population (United States Census Bureau, 2015) half of children who have an incarcerated parent are black (Bureau of Justice Statistics, 2010). There is an established relationship between parental incarceration and substance use (Kopak and Smith-Ruiz, 2015; Murray et al., 2012; Roettger et al., 2011), and, though less well researched, sexual risk behavior during adolescence (Nebbitt et al., 2014; Whalen and Loper, 2014) and adulthood (Hillis et al., 2001; Hillis et al., 2000) and HIV infection in adulthood (Lee

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et al., 2013). An important gap in the extant literature however is knowledge of how the age of the child during a parental incarceration influences risk. While parental incarceration appears to influence risk regardless of the child's age (Murray et al., 2012) there may be particularly deleterious impacts for the youngest children because they are dependent on their parents for basic necessities, the event occurs during a period of intensive cognitive development, and there is a greater length of time for incarceration-induced stress to impact cognitive development and mental health (Gunnar, 2003; Loman et al., 2010; Lupien et al., 2009). On the other hand, it is possible that parental incarceration occurring shortly before adolescence/emerging adulthood, when risk-taking is initiated and peaks, may have particularly harmful effects. We need to better understand how parental incarceration may influence risk at different developmental periods. Additionally, few studies have tested the impact of racial/ethnic differences on the associations between parental incarceration and risk outcomes. This could be particularly important considering that black and Hispanic youth are populations disproportionately affected by both incarceration (Bureau of Justice Statistics, 2015) and STI/HIV (Centers for Disease Control and Prevention, 2014a, 2015a). Recent evidence of the strong association between parental incarceration and marijuana use among black youth highlights the need to examine associations by race (Kopak and Smith-Ruiz, 2015).

Though parental incarceration has been linked to substance use and sex risk, the mediating paths have not been well defined. Households affected by parental incarceration experience reduced social cohesion, emotional support, and material support and face risk of poverty and residential instability (Geller et al., 2009). This lack of social cohesion, poverty, and household instability are established risk factors for other traumatic experiences, including physical and sexual abuse, which play a role in substance use and sex risk (Bassuk et al., 1998). Lack of social cohesion and prosocial attachments are also linked to delinquent behaviors (Tolan, 1988) and delinquency is associated with later risk taking (Hunter et al., 2014). Further, when a parent is incarcerated, a child is left to cope with feelings of embarrassment, worry, loneliness, confusion, and anger (Johnson and Easterling, 2012). Each of these aforementioned factors (e.g., diminished social support, increased economic strain, and social stigma) that are linked to parental incarceration may contribute to persistent stress, which, in turn, can negatively impact cognitive development (Craigie, 2011; Lee et al., 2013; Shonkoff et al., 2012) and mental health (Trivedi, 2006). Impaired cognition and increased risk of mental disorders are risk factors for drug use (Center for Behavioral Health Statistics and Quality, 2015) and sexual risk behavior (Erbelding et al., 2001; Erbelding et al., 2004; Mazzaferro et al., 2006). Hence, childhood abuse, delinquency, and poor mental health may be pathways through which parental incarceration may influence subsequent drug use and sexual risk behavior, but no known studies have empirically explored mediation by these factors among racial/ethnic groups.

The purpose of the current study was to use the National Longitudinal Study of Adolescent to Adult Health (Add Health), a large, nationally-representative longitudinal cohort, to examine the association between age at first parental incarceration and HIV-related drug use and sex risk in adolescence and adulthood. We examined differences by race/ethnicity and assessed factors that may result from parental incarceration as mediators of associations between parental incarceration and STI/HIV risk outcomes.

2. Materials and methods

2.1. Sample and study design

We used Add Health to conduct this secondary data analyses. Add Health's design has been described elsewhere (Carolina Population Center, 2016; Harris, 2005). In short, a nationally-representative sample of approximately 20,000 7th-12th graders completed an in-home interview during the 1994-95 school year (Wave I); a parent of the participant was also interviewed. The original cohort was re-interviewed in 2001–02 (Wave III; n = 15,197; ages 18–28) and 2007–08 (Wave IV; n = 15,701; ages 24–34). Our analytic sample consists of Add Health participants with valid sample weights at Waves I, III, and IV (N = 12,288) whom have data on parental incarceration (n = 11,884).

2.2. Measures

2.2.1. Parental incarceration

At Wave IV, participants were asked whether their biological mother or father had ever spent time in jail/prison, and their age when their parent was first incarcerated. We created a variable that captured the age at first parental incarceration (never; < 8; 8–17; ≥18 years old).

2.2.2. HIV-related drug and sex risk outcomes

At Wave I, participants reported the age at which they first used marijuana and cocaine, and we dichotomized this to indicate adolescent use as never versus ever used for each substance. Participants reported the total number of people with whom they had ever had a sexual relationship, and we created a dichotomous variable defining adolescent multiple sexual partners as ≥2 partners versus one or fewer partners. Participants were asked if they had ever been told by a doctor/nurse that they had chlamydia, gonorrhea, and/or trichomoniasis, and we created a dichotomous indicator of adolescent STI, defined as reporting at least one infection versus no infections. At Wave IV, participants reported how many days they used marijuana in the past 12 months, and we dichotomized this to define adulthood marijuana use as use on one day or more versus no use, given the association between any marijuana use and sexual risk behavior and STI in adulthood (van Gelder et al., 2011). We defined adulthood cocaine use as any reported cocaine use versus no reported use. Participants reported their number of sex partners in the past 12 months, and we defined adulthood multiple sexual partners as ≥2 partners versus one or fewer partners. Adulthood STI was dichotomous and defined as reporting that a doctor, nurse, or other health professional had told the participant he/she had chlamydia, gonorrhea, and/or trichomoniasis in the past 12 months versus no STI diagnoses.

2.2.3. Confounders: sociodemographics, parental binge drinking, and exposure to violence

We categorized race/ethnicity as Hispanic, white, black, and other (e.g., Asian, Native American). We calculated a continuous age variable at each Wave based on birth year and survey interview date. Gender was categorized as male and female. We measured two dichotomous indicators of functional poverty, defined as not having enough money to pay housing/utility bills in adolescence (reported by the parent at Wave I) and/or in emerging adulthood (reported by the participant at Wave III); the referent for each was answering no to each question. Education was reported at Wave IV and categorized as less than high school, high school, and greater than high school. We also controlled for dichotomous measures of parental binge drinking and exposure to violence in the year prior to the Wave I survey, including witnessing a shooting or stabbing or experience of being shot or stabbed; the referent for each was no exposure.

2.2.4. Mediating factors

When we detected significant associations between parental incarceration and adulthood drug and sex risk, we examined the degree to which the associations were mediated by childhood/adolescent factors hypothesized, based on the extant literature, to play a mediating role. Depressive symptoms at Waves I and III were assessed using a modified version of the Centers for Epidemiologic Studies Depression Scale (CES-D) (Radloff and Rae, 1979), on which participants reported the