

Maternal incarceration trajectories and the intergenerational transmission of imprisonment: A nationwide study



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ABSTRACT

While children with maternal incarceration experiences have substantially higher rates of criminal justice involvement than children without maternal incarceration experiences, research on the association between maternal imprisonment and children's criminal justice involvement reveals divergent findings. The inconsistencies are potentially attributable to the widespread use of a dichotomized maternal incarceration measure that masks different experiences across samples. This study used incarceration trajectories over the life course to determine the nature and array of maternal imprisonment histories associated with intergenerational incarceration. Using the Survey of Inmates in State and Federal Correctional Facilities dataset (N = 881), we conducted logistic regression to examine the relationship between maternal incarceration trajectories and children's risk of imprisonment. Findings suggested that children whose mothers followed the young-adulthood-peak trajectory had higher odds of being incarcerated than children whose mothers followed the moderate declining path. Moreover, the mother's experiences of sexual abuse and juvenile justice involvement were significantly associated with intergenerational incarceration. This study suggests the need to use comprehensive longitudinal maternal incarceration measures to understand its consequences. Rehabilitative rather than punishment-oriented interventions for mothers may lower the odds of intergenerational incarceration. Prevention programs that target the unique challenges of mothers following the young-adulthood-peak trajectory may also interrupt intergenerational imprisonment. Moreover, criminal justice reform should consider systematic racism and socioeconomic inequalities to reduce the criminal justice involvement of children from disadvantaged communities in the US.

1. Introduction

It has been well-documented that children with maternal incarceration experiences have a substantially elevated risk of criminal justice involvement compared with children without maternal incarceration experiences (Farrington & Welsh, 2012; Giordano, 2010; Murray et al., 2012). Studies on the association between maternal incarceration and children's criminal justice involvement, however, have revealed contradictory findings (Giordano & Copp, 2015; Turney & Wildeman, 2015; Woodard & Copp, 2016). These inconsistencies are potentially attributable to the widespread use of a dichotomized maternal incarceration measure that masks different experiences across samples (Kirk & Wakefield, 2018; Turney & Wildeman, 2015). This study aims to understand the heterogeneity among children of incarcerated mothers. Specifically, it uses incarceration trajectories over

the life course to understand the nature and array of maternal imprisonment histories associated with intergenerational incarceration.

Women represent the fastest-growing population in the correctional system (Arditti & Few, 2006). Compared with a 350% increase in incarcerated men, the number of incarcerated women has increased more than 700% in the past three decades, rising from 26,378 in 1980 to 225,060 in 2017 (Carson, 2015; The Sentencing Project, 2018). Because most imprisoned women are mothers with an average of two to three children (Shlafer et al., 2019), more than one million American children have experienced maternal incarceration (Arditti, 2015). Research suggests that maternal incarceration is unequally distributed and often occurs among US society's most marginalized segments (Wakefield & Wildeman, 2018). For instance, African American children were reported to be five times more likely to experience maternal incarceration than European American children (Wildeman, 2009). These differences

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have been documented to be primarily associated with racial disparities in criminal justice policies and broader socioeconomic structural factors (Cahill et al., 2019).

Children with maternal incarceration experiences have higher rates of internalizing (e.g., depression) and externalizing problems (e.g., school failure; Lee et al., 2013; Uggen & McElrath, 2014), particularly considerably elevated risk of criminal justice involvement compared to children without maternal incarceration experiences (Farrington & Welsh, 2012; Giordano, 2010; Murray et al., 2012). One statistic indicates that children of incarcerated parents are, on average, six times more likely to become incarcerated themselves (Cox, 2009).

In the past two decades, research on the etiology of intergenerational criminal behavior has increased. However, studies on its explanatory factors, such as the role of maternal incarceration history, have generated heterogeneous findings (Kirk & Wakefield, 2018; Turney & Wildeman, 2015; Woodard & Copp, 2016). Some studies suggest that maternal incarceration is not detrimental to or even beneficial to the child's behavioral outcomes. For instance, Wildeman and Turney (2014) suggest that maternal incarceration's effects on the child's behavioral problems are often null. They indicate that the impetus for the child's behavioral problems might be an adverse accumulation of disadvantages preceding maternal incarceration, considering that incarcerated mothers are a more selected group of marginalized women than justice-involved men (Johnson & Waldfogel, 2002; Wildeman, 2009). This argument is consistent with the study by Giordano and Copp (2015), which suggests that children of incarcerated mothers face "packages of risks," including family disruption, exposure to maternal drug use and antisocial behavior, domestic violence, and economic strain. Because these factors related to the mother's lifestyle can massively impact the child's behaviors relative to maternal incarceration, the mother's imprisonment may become less consequential to or even reduce the child's delinquent behaviors (Roettger, 2015).

Other studies indicate that maternal incarceration is only detrimental to children of specific sociodemographic backgrounds. Individually, the impact of maternal imprisonment varies by the child's gender (Burgess-Proctor et al., 2016), racial background (Wakefield & Wildeman, 2018; Western & Wildeman, 2009), and social class (Turney & Wildeman, 2015). For instance, boys with incarcerated mothers are more likely to exhibit externalizing problems such as delinquent behaviors, whereas girls are more likely to develop internalizing problems (Burgess-Proctor et al., 2016). Wildeman and Turney (2014) reported that non-minority children had shown diminished behavioral problems after mothers' imprisonment. Additionally, the research by Turney and Wildeman (2015) suggests that the effect of maternal incarceration on children varies by the mother's propensity for incarceration. Maternal incarceration is most deleterious for children who are least likely to experience it but is not as detrimental to children whose mothers are at high risk for imprisonment.

However, some studies still suggest that maternal incarceration is an essential contributor to the intergenerational transmission of imprisonment after controlling for pre-incarceration disadvantages and children's sociodemographic characteristics (Hagan & Foster, 2012; Lee et al., 2013; Turney & Wildeman, 2015). Maternal incarceration involves disruptions in the child's living arrangement and attachment to the mother. When the mother is imprisoned, the child is unlikely to live with the father and most likely to relocate to a new household with a grandmother or a foster mother as the new primary caregiver (Johnson & Waldfogel, 2002; Mumola & Mumola, 2009). Since there are fewer prisons for women than men, mothers tend to be incarcerated far from home, making sustained communication and visits from the child less likely (Cho, 2010). Further, as mothers are often the child's primary caregivers, there is a greater tendency for the child to experience a substantial level of stress due to incarceration-related events, such as being present at arrest and sentencing (Dallaire & Wilson, 2010). Because living disruptions and elevated stress are associated with an

increased risk of incarceration among children (Allen et al., 2002; Fomby & Cherlin, 2007), maternal incarceration may contribute to the intergenerational transmission of imprisonment.

The inconsistent findings regarding the association between maternal incarceration and children's risk of criminal justice involvement are potentially attributable to the widespread use of an oversimplified maternal imprisonment history measure (i.e., whether the child had experienced maternal incarceration; Kirk & Wakefield, 2018; Mears et al., 2015). Because the effects of maternal incarceration have been found to vary by its frequency and duration, treating maternal incarceration as a dichotomous event masks significant variations in the child's experience and its respective consequence (Kirk & Wakefield, 2018; Mears et al., 2015). To investigate the type of maternal incarceration histories detrimental to children, this study uses maternal incarceration trajectories over the life course to determine their associations with the intergenerational transmission of imprisonment.

The developmental trajectory theories (Chung et al., 2002; Moffitt, 1993) and the differential stress exposure theory (Dohrenwend, 1973) provide useful guidance for this investigation. The developmental trajectory theories emphasize the importance of examining within-subject changes in offending career over time (Blumstein, 1986). They predict different subgroups within the offender population with distinctive etiologies that follow diverse developmental offending trajectories (Chung et al., 2002). The dual taxonomy theory by Moffitt is the most appropriate developmental trajectory theory for this study. According to Moffitt (1993), there are two categories of female offenders: life-course-persistent offenders and adolescence-limited offenders. The life-course-persistent offenders have an early onset of minor offending and gradual involvement in more serious crime over the life course. In contrast, adolescent-limited offenders have a transient expression of offending in adolescence and desist from antisocial lifestyles as they transition to adulthood. A recent systematic review of women's offending careers revealed other trajectories, including adolescence-delayed-onset trajectory, childhood-limited trajectory, and adulthood-onset trajectory (Fontaine et al., 2009). To most children, maternal incarceration is a challenging life experience (Turney & Wildeman, 2015). Different maternal incarceration experiences represent an unequal distribution of stressors among subgroups of children. According to the differential stress exposure theory, varying levels of exposure to stressful life events could contribute to different levels of maladjustment problems (Vanroelen et al., 2010).

Guided by these theoretical frameworks, we hypothesize that children with more extensive maternal incarceration histories (i.e., lengthy annual incarceration for an extended period) would have higher imprisonment risks. This study is among the first endeavors to understand the consequences of maternal incarceration using comprehensive longitudinal measures. As well, it intends to generate a more nuanced understanding of the subgroups of children that are most impacted by maternal incarceration. This knowledge is essential for customized criminal justice services for marginalized children to interrupt the intergenerational transmission of imprisonment in the United States.

2. Methods

2.1. Data and sample

This study used the 2004 Survey of Inmates in State and Federal Correctional Facilities (SISFCF) dataset for analysis. The SISFCF provides a nationally representative sample of women in state and federal prisons. It was implemented periodically from 1974 to 2004, then performed again in 2016, renamed the Survey of Prison Inmates (SPI). However, because the SPI data is not available for public use, the SISFCF 2004 is the most current national dataset on women prisoners. It used a stratified two-stage sample design. The first stage selected facilities to be included, and the second stage selected individuals to be interviewed. A total of 287 state prisons and 39 federal prisons

participated in the survey. Overall, 14,499 individuals in state facilities and 3686 individuals in federal facilities were interviewed (James & Glaze, 2006; Maruschak, 2008).

After obtaining informed consent, participants reported their total incarceration (for a maximum of 12 episodes) and comprehensive longitudinal incarceration histories retrospectively through face-to-face interviews. The vast majority of participants (97.05%) had less than 12 episodes of incarceration. For each incarceration episode, participants reported their incarceration experiences (i.e., type of correctional facilities confined, type of offenses convicted, and whether or not being sentenced as an adult), age of incarceration, and the duration of incarceration (days, months, and years). Participants also reported their sociodemographic characteristics and incarceration histories of their children.

Because maternal incarceration trajectories over the life course served as an essential component in the data analysis, listwise deletion was conducted to only include women ($n = 3888$) who were mothers ($n = 3103$) and had at least one complete incarceration history data (i.e., the date of incarceration, duration of incarceration, and date of release) in this study. The final sample comprised 881 mothers imprisoned in state and federal correctional facilities.

2.2. Measures

2.2.1. Maternal incarceration trajectories

Based on the length of time (in months) the mothers were incarcerated each year, a recent paper used semi-parametric group-based trajectory modeling to identify subgroups of mothers in the SISFCF with distinct incarceration trajectories (Zhao, Cepeda, Chou, & Valdez, 2020). The Proc Traj package in SAS was utilized for this analysis (Jones et al., 2001). Specifically, the first stage focused on determining the number of groups to be included in the model. As the criminological literature has suggested that the minimum number of groups was two, and the maximum number was eight (Le Blanc, 2002), the model with two groups to model with eight groups were estimated. Based on the sample-dependent Bayesian Information Criterion (BIC) scores and the interpretability of the model (Nagin & Nagin, 2005), the four-group model was determined as the optimally fitted model.

The second stage focused on determining the shape of each trajectory. Because all trajectory polynomials were preset as cubic (Jones et al., 2001), for non-significant cubic polynomials, the trajectory shape was redefined using the significant polynomial (i.e., quadratic or linear). Participants were assigned a posterior probability of membership in each group and were classified to the group that they had the highest class probability. Because the preliminary observation of the data suggests the minimum age of the first incarceration was ten years and few participants have incarceration history after 53 years of age, the incarceration trajectories estimated in this study ranged from age 10 to 53.

The actual and predicted trajectories for each estimated group were presented in Fig. 1. Group 1 was the stably escalating group ($n = 33$, 3.75%). Imprisoned mothers in this group had experienced an increasingly longer incarceration duration each year from childhood to adulthood. Group 2, the moderate declining trajectory ($n = 665$, 75.48%), was the largest group wherein members were incarcerated from childhood to middle adulthood for approximately five months a year and experienced a sharp decrease in the annual length of incarceration in young adulthood. Group 3 was the adolescence-peak trajectory ($n = 109$, 12.37%), and Group 4 was the young-adulthood-peak trajectory ($n = 74$, 8.40%). Members in Group 3 were incarcerated for a higher number of months each year since childhood. Their annual length of incarceration peaked in adolescence then declined in young adulthood. Members in Group 4 were incarcerated for a small number of months each year in childhood. Their annual length of incarceration peaked in young adulthood then steadily declined. The maternal incarceration trajectory memberships were the predicting

variables in this study.

2.2.2. Children's incarceration history

In the SISFCF survey, each participant was asked whether her child or stepchild has ever been sentenced and served time in jail. Responses were coded as a dichotomous variable (1 = *have child or stepchild sentenced and served time in jail*, 0 = *do not have child or stepchild sentenced and served time in jail*). Their children's incarceration history served as the dependent variable in the analysis.

2.2.3. Maternal incarceration experiences

The SISFCF assessed maternal incarceration experiences. Participants were asked about the type of correctional facilities they were sentenced to through the following survey item: "What type of institution were you sentenced to—a juvenile facility, local or county jail, state prison, other state facility, or federal facility?" Four continuous variables were created to represent the total number of confinement episodes in jail, prison, juvenile facility, and other facilities.

Participants were also asked to name up to five convicted offenses regarding each incarceration. Guided by the Bureau of Justice Statistics' categorizing of offenses, five continuous variables were created to represent the total number of property offenses, violent offenses, drug offenses, public order offenses, and other offenses.

Moreover, participants were asked how they were sentenced for each incarceration episode through the following survey item: "For the (read above offenses), were you sentenced as an adult, a youthful offender, or a juvenile?" If the participant was younger than 18 years and was sentenced as an adult, the participant was categorized as being sentenced as an adult. A continuous variable representing the number of times participants being sentenced as an adult was included in the analysis.

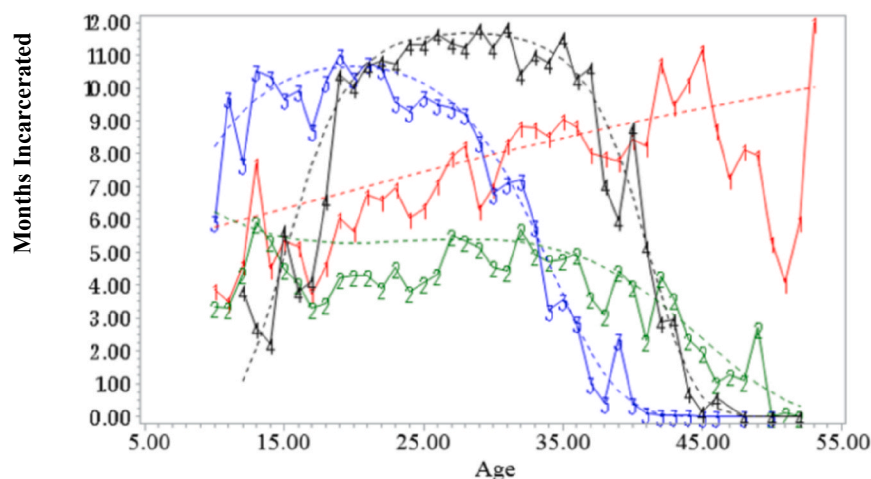
As suggested in the literature, the mothers' incarceration experiences, including the type of correctional facilities confined (Massoglia & Warner, 2011; Wildeman et al., 2016), type of offenses convicted (Turney & Wildeman, 2015; Uggen et al., 2013), and the number of times being sentenced as an adult (Redding & Fuller, 2004) are related to the wellbeing of children and were therefore incorporated into the analysis.

2.2.4. Sociodemographic characteristics

Research suggests that the mother's socioeconomic characteristics were associated with intergenerational imprisonment (Chesney-Lind & Pasko, 2013; Greene et al., 2000; Hollin & Palmer, 2006). The SISFCF assessed the mother's socioeconomic characteristics before the current incarceration, including racial and ethnic background, educational attainment, employment status, living arrangement, and marital status.

2.2.5. Adverse life experiences

Adverse life experiences of the imprisoned mothers were also assessed in the SISFCF. Participants reported whether they have ever lived in a foster home, agency, or institution. A dummy variable was created to represent their foster care involvement. Experience of sexual abuse was assessed using the following survey item: "Before your admission to prison, had anyone ever pressured or forced you to have any sexual contact against you will?" Participants who responded positively to this question were considered having sexual abuse experience. To determine physical abuse experience, participants were asked whether they were ever (a) pushed, grabbed, slapped, kicked, bit, or shoved before admitted to the prison, (b) hit with a fist, (c) beat up, (d) choked, or (e) anyone ever used a weapon against them. Positive response to any item was considered as having physical abuse experience. Research suggests that the mother's prior foster care involvement and lifetime experiences of physical and sexual abuse (Bruskas & Tessin, 2013; Hughes et al., 2010; Trice & Brewster, 2004) are directly or indirectly related to children's risk of incarceration. Therefore, indicators of the mothers' adverse life experiences were included in the analysis.



- Group 1:** Stably escalating incarceration trajectory (n=33, 3.75%)
- Group 2:** Moderate declining incarceration trajectory (n=665, 75.48%)
- Group 3:** Adolescence-peak incarceration trajectory (n=109, 12.37%)
- Group 4:** Young-adulthood-peak incarceration trajectory (n=74, 8.40%)

Fig. 1. The mothers' retrospective histories of incarceration: Months of imprisonment per year (N = 881).

2.3. Analytical procedure

Data analysis was preceded in four steps using the SAS 9.4 programming language. First, frequency distributions of categorical variables and measures of central tendency of continuous variables were examined to reflect the imprisoned mother's sociodemographic characteristics, incarceration experiences, and the child's incarceration histories. Second, ANOVA and Student-Newman-Keuls tests for continuous variables and chi-square tests for categorical variables were conducted to compare the characteristics of subgroups of imprisoned mothers with distinct incarceration trajectories. Third, simple correlation analyses were conducted to examine the associations between the child's risk of incarceration and the mother's imprisonment trajectories, sociodemographic characteristics, adverse life experiences, and incarceration experiences. Fourth, controlling for the mother's sociodemographic characteristics, adverse life experiences, and incarceration experiences, stepwise multiple logistic regression was conducted to investigate the relationship between maternal incarceration trajectories and intergenerational imprisonment. Because the control and outcome variables' missingness was minimal (0.11%), missing values were not imputed. Unless otherwise indicated, the significance level (two-tailed) was set at $p < .05$.

3. Results

3.1. Descriptive statistics

The mothers imprisoned in state and federal correctional facilities were, on average, 37.57 years of age (Table 1). Most of them were White Americans (55%), followed by African Americans (39%). Before the most recent incarceration, more than half of the participants were employed, 40% had a high school diploma, and only 20% were married. Moreover, approximately 16% of the imprisoned mothers were previously involved in the foster care system.

Experiences of physical and sexual abuse were prevalent among this population. Approximately 23% of the imprisoned mothers had

experienced physical abuse, and 44% had experienced sexual abuse. Moreover, on average, 10% of the participants had a child or stepchild with incarceration histories.

In terms of incarceration experiences, these imprisoned mothers on average had more than three episodes of incarceration in prisons, more than two episodes of confinement in jails, and two episodes of confinement in juvenile facilities. Property offenses were the most prevalent convictions among them, whereas violent offenses were the least common convictions.

3.2. Comparative statistics

The characteristics of imprisoned mothers following distinct incarceration trajectories were presented in Table 1. ANOVA and chi-square tests revealed that the stably escalating group was significantly older ($F = 36.37$, $df = 3$, $p < .001$) than other groups, had a lower percentage of Native Americans ($\chi^2 = 7.89$, $df = 3$, $p < .05$), and a lower prevalence of foster care involvement ($\chi^2 = 10.77$, $df = 3$, $p = .01$) and sexual abuse experience ($\chi^2 = 9.32$, $df = 3$, $p = .03$). The moderate declining group had significantly fewer episodes of prison confinements (2.69) compared to other groups. The adolescence-peak group had a significantly higher percentage of Native Americans (12.84%) and a higher prevalence of foster care involvement (23.85%). The young-adulthood-peak group was significantly older (42.00 years) than the moderate declining group (36.63 years) and the adolescence-peak group (36.71 years). Additionally, children whose mothers followed the young-adulthood-peak trajectory had a significantly higher incarceration rate than children whose mothers followed other trajectories ($\chi^2 = 9.32$, $df = 3$, $p = .03$).

Although not statistically significant, a larger proportion of mothers in the stably escalating group (54.55%) and the young-adulthood-peak group (44.59%) had graduated from high school and were married before imprisonment (30.30% and 27.03%, respectively), compared to mothers in the moderate declining group and the adolescence-peak group. Moreover, the young-adulthood-peak group had higher physical abuse rates (28.38%) compared to the other groups.

Table 1

Sociodemographic characteristics and incarceration experiences among mothers with distinct incarceration trajectories and their children's imprisonment history, SISFCF (N = 881).

	Group 1: Stably Escalating	Group 2: Moderate Declining	Group 3: Adolescence- Peak	Group 4: Young -Adulthood- Peak	Total
Sociodemographic Characteristics					
Age ^{***}	49.39 ^{***}	36.63	36.71	42.00 ^{***}	37.57
Race/Ethnicity (%)					
White American	57.58	55.94	50.46	56.76	55.39
African American	42.42	38.35	39.45	37.84	38.59
Latino American	18.18	15.34	16.67	14.86	15.55
Native American*	.00*	6.77	12.84*	6.76	7.26
Asian American	.00	1.05	.00	.00	.79
Pacific Islander	.00	.15	.00	.00	.11
Unknown*	.00	.15	1.83*	.00	.34
High School Graduate (%)	54.55	39.88	32.11	44.59	39.77
Employed (%)	53.13	54.82	49.53	56.94	53.23
Married (%)	30.30	19.58	19.27	27.03	20.57
Housing Stability (%)	84.38	82.08	77.57	79.17	79.80
Foster Care Involvement (%)*	6.06*	16.39	23.85*	8.11	16.23
Experience of Physical Abuse (%)	18.18	22.11	23.85	28.38	22.70
Experience of Sexual Abuse (%)*	19.35*	44.93	45.87	46.58	43.93
Incarceration Experiences					
Type of Facilities Incarcerated					
Prisons ^{***}	4.42	2.95 ^{***}	3.93	3.79	3.21
Jails	2.77	2.33	2.32	2.25	2.33
Juvenile Facility	1.00	1.69	1.37	1.50	1.60
Other Facility	1.00	1.38	1.67	3.50	1.50
Sentenced as an Adult	1.68	1.86	2.25	1.98	1.91
Type of Offenses Convicted					
Property Offenses	2.36	1.87	2.18	1.84	1.93
Violent Offenses	1.10	1.45	1.33	1.54	1.43
Drug Offenses	1.95	1.70	1.85	1.75	1.74
Public Order Offenses	1.20	1.95	1.58	1.67	1.87
Other Offenses	.00	1.13	1.00	1.00	1.08
Children's Imprisonment History (%)*	12.12	9.02	10.09	20.27*	10.22

⁺ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$.

3.3. Correlation analyses

Pearson chi-square statistics and Point-Biserial correlation coefficients – a special form of Pearson correlation coefficients – were computed to assess the association between children's risk of incarceration and mothers' imprisonment trajectories, sociodemographic characteristics, adverse life experiences, and incarceration experiences. Findings suggested that the moderate declining maternal incarceration trajectory ($\chi^2 = 4.21$, $p = .040$) and the young-adulthood-peak maternal incarceration trajectory ($\chi^2 = 8.90$, $p = .002$) were correlated with children's risk of incarceration. Besides, the number of episodes that mothers were confined in juvenile justice facilities was significantly correlated with children's risk of incarceration ($r_{\text{pbi}} = -.073$, $p = .030$).

3.4. Regression analysis

Findings from the stepwise multiple logistic regression were detailed in Table 2. Specifically, maternal incarceration trajectories were significantly associated with intergenerational imprisonment in the baseline model. The significant associations remain unchanged after controlling for mothers' sociodemographic characteristics, adverse life experiences, and incarceration experiences. In the final model, children whose mothers followed the young-adulthood-peak incarceration trajectory had 2.91 the odds as children whose mothers followed the moderate declining incarceration trajectory to have imprisonment histories (95% CI = 1.07–7.94, $p = .04$).

Although not the primary focus of this study, findings revealed significant associations between the mothers' adverse life experiences and incarceration experiences and their children's risk of incarceration. Specifically, children whose mothers experienced sexual abuse had 1.65 the odds of being incarcerated compared with children whose mothers

did not experience sexual abuse (95% CI = 1.03–2.65, $p = .04$). Further, children with mothers confined in juvenile justice facilities for a higher number of episodes had lower odds of being incarcerated than children with mothers confined in juvenile justice facilities for a lower number of episodes (OR = .33, 95% CI = .11–.99, $p = .05$).

4. Discussion

This study is one of the initial efforts to investigate the intergenerational transmission of imprisonment to children across pre-determined maternal incarceration trajectories over the life course. Findings suggest that children with mothers following distinct imprisonment trajectories have significantly different odds of being incarcerated. In addition to maternal incarceration trajectories, findings revealed other factors associated with intergenerational incarceration, including the mother's sexual abuse experience and juvenile justice involvement.

The most significant finding in this study is that children with particular maternal incarceration histories are at higher risk for imprisonment. Specifically, children with mothers following the young-adulthood-peak incarceration trajectory had significantly higher odds of being imprisoned than children with mothers following the moderate declining incarceration trajectory. Mothers in the moderate declining incarceration group had significantly fewer prison confinement episodes compared to those in the young-adulthood-peak group. Unlike jails and other correctional facilities, prisons represent a more punitive form of social control in terms of sentence length, distance from home, and seriousness of convictions (Glaze & Maruschak, 2010; Massoglia & Warner, 2011). Because of these reasons, mothers exposed to a lower number of prison confinements are less likely to have severe and long-lasting social reintegration consequences, such as homelessness and unemployment, and can usually achieve better reentry outcomes

Table 2
Multivariate statistics: Maternal incarceration trajectories, and intergenerational imprisonment, SISFCF (N = 881).

Variable	Intergenerational Imprisonment							
	Model 1		Model 2		Model 3		Model 4	
	OR [95% CI]	p	OR [95% CI]	p	OR [95% CI]	P	OR [95% CI]	P
Maternal Incarceration Trajectories								
Group 1: Stably Escalating Group	1.57 [.37–6.35]	.56	2.61 [.39–6.67]	.51	1.69 [.40–7.18]	.48	1.86 [.42–8.30]	.42
Group 3: Adolescence-Peak Group	1.57 [.59–4.20]	.37	1.48 [.54–4.04]	.45	1.59 [.57–4.42]	.37	1.59 [.52–4.93]	.42
Group 4: Young-Adulthood-peak Group *	2.90 [1.17–7.20]	.02	2.97 [1.18–7.44]	.02	3.03 [1.19–7.68]	.02	2.91 [1.07–7.94]	.04
Sociodemographic Characteristics								
Race/Ethnicity								
African American			1.31 [.82–2.10]	.26	1.47 [.90–2.38]	.12	1.52 [.93–2.48]	.10
Latino American			1.08 [.56–2.08]	.83	1.18 [.60–2.29]	.63	1.27 [.65–2.50]	.49
Native American			1.01 [.42–2.47]	.98	1.47 [.39–2.36]	.92	.92 [.36–2.33]	.86
Asian American			2.07 [.23–18.31]	.51	1.88 [1.21–16.74]	.57	2.27 [.24–21.62]	.47
Pacific Islander			< .01 [< .01- > 999.99]	.99	< .01 [< .01- > 999.99]	.99	< .01 [< .01- > 999.99]	.99
High School Graduate			.82 [.52–1.31]	.40	.77 [.48–1.23]	.28	.74 [.46–1.20]	.22
Married			1.12 [.66–1.92]	.67	1.13 [.66–1.94]	.65	1.08 [.63–1.86]	.78
Employed			1.48 [.93–2.35]	.10	1.52 [.95–2.43]	.08	1.45 [.90–2.33]	.13
Adverse Life Experiences								
Foster Care Involvement					.54 [.26–1.12]	.10	.60 [.28–1.28]	.19
Experience of Physical Abuse					.61 [.33–1.10]	.10	.61 [.34–1.12]	.11
Experience of Sexual Abuse					1.57 [.99–2.50]	.05	1.65 [1.03–2.65]	.04
Maternal Incarceration Experiences								
Type of Facilities Incarcerated								
Prison							.98 [.85–1.14]	.82
Jail							.95 [.76–1.19]	.65
Juvenile Facilities							.33 [.11-.99]	.05
Other Facilities							1.09 [.70–1.69]	.70
Sentenced as an Adult							.99 [.82–1.20]	.94
Type of Offenses Convicted								
Property Offenses							1.01 [.82–1.24]	.95
Violent Offenses							1.00 [.71–1.40]	.98
Drug Offenses							.94 [.74–1.21]	.63
Public Order Offenses							1.02 [.81–1.30]	.84
Other Offenses							< .01 [< .01- > 999.99]	.98

Note. The reference group for maternal incarceration trajectories is Group 2: moderate declining group. The reference group for race/ethnicity is White American. * $p < .05$, ** $p < .01$, *** $p < .001$.

(Dohrenwend, 1973; Vanroelen et al., 2010). This finding suggests future research should focus on examining the variation in consequences for children with mothers incarcerated in distinct types of correctional facilities. It also suggests the need for legislative changes and policy reform on conditions under which to use prison confinement.

The distinct characteristics of incarceration trajectories between the young-adulthood-peak group and the moderate declining group may also explain disparities in their children’s incarceration risk. Compared with the moderate declining group, mothers in the young-adulthood-peak group were more embedded in the correctional system (i.e., spending most of the time in correctional facilities) between ages 18 and 38. Because the Bureau of Justice Statistics suggests that incarcerated parents of minor children were most likely to be age 25 to 34 (Glaze & Maruschak, 2010), children whose mothers followed the young-adulthood-peak trajectory tend to experience intensive maternal incarceration in childhood and adolescence. According to the life course theory, childhood and adolescence are critical developmental stages (e.g., biologically and socially) during which exposure to traumatic events may be more consequential (Ben-Shlomo, 2002). To interrupt intergenerational incarceration, interventions that tailor to mothers following the young-adulthood-peak trajectory could potentially produce positive outcomes. Future research on the intergenerational effects of maternal incarceration on children at different developmental stages and the underlying explanatory mechanisms is also warranted.

Contributing to the literature on intergenerational incarceration etiology, this study found that mothers’ sexual abuse experience was significantly associated with children’s risk of incarceration. Women entering prisons and jails are disproportionally from urban minority communities with marginalized socioeconomic status (Zhao, Afkinich,

& Valdez, 2019). Their disadvantaged backgrounds place them at relatively high risk for sexual abuse (Bloom & Covington, 2008; Travis et al., 2014), which is associated with elevated mental health problems (Bloom & Covington, 2008). Compared to women without mental health problems, research has found that women with mental health problems are more likely to become sexual abuse targets by correctional staff during confinement (Buchanan, 2007; Travis et al., 2014). According to the differential stress exposure theory, adverse experiences before and during incarceration, if not adequately addressed, can have long-lasting consequences on the wellbeing and functioning of women, which might contribute to delinquency behaviors and even criminal activities among their children (Honor, 2010). To develop effective interventions targeting children with maternal incarceration experiences, research on factors linking sexual abuse experiences of the mothers and intergenerational incarceration (e.g., parenting, mental health) is needed. Moreover, criminal justice reform should attend to structural level factors (e.g., systematic racism and socioeconomic inequalities) related to individuals’ disproportionate imprisonment from disadvantaged ethnic minority communities.

Additionally, findings suggest that children with mothers confined in juvenile facilities for a higher number of episodes had lower odds of being incarcerated than children with mothers who were confined in juvenile facilities for a lower number of episodes. This finding may seem counterintuitive because an earlier onset of criminal justice involvement is likely to set individuals into a detrimental path that might adversely affect their children (Satterfield & Schell, 1997). However, as illustrated by Moffitt’s (1993) dual taxonomy theory, a subgroup of women offenders (i.e., adolescence-limited) had a transient expression of offending in adolescence and desisted from antisocial lifestyle as they transition to adulthood, which may be related to their involvement in

juvenile facilities. Compared with adult correctional facilities that emphasize punishment, juvenile facilities were found to be smaller, have much lower inmate-to-staff ratios, and place greater emphasis on treatment, counseling, education, and mentoring of inmates (Banks, 2013; Kupchik, 2007). Although our data do not allow further examination of the association between juvenile justice involvement and future criminal engagement, we speculate a positive association between the number of episodes of juvenile justice involvement and crime prevention considering the unique features of juvenile facilities. Guided by the differential stress exposure theory, findings in this study may suggest that rehabilitative interventions provided to the mothers rather than punishment-oriented programs can potentially have positive effects on children's behavioral outcomes and lower the odds of the intergenerational transmission of confinement.

This study is subject to a number of limitations. First, because of the nature of secondary data analysis, factors related to the child's risk of incarceration such as peer delinquency (Moffitt, 1993), demographic characteristics (e.g., gender and region; Burgess-Proctor et al., 2016; Krisberg et al., 1976), and characteristics of the father (Hjalmarsson & Lindquist, 2012) were not included. Second, for the small number of mothers (2.95%) who had been incarcerated for more than 12 times, the SISFCF data could not fully capture their incarceration histories that exceeded 12 episodes. Third, probably because prison sentences are more likely to be recalled because they are relatively lengthy and more severe than jail sentences, mothers included in the analysis had more prison confinements than those excluded. Therefore, caution is needed when generalizing findings to children with limited maternal incarceration experiences. Fourth, because the SISFCF contains limited data on children of the prisoners, there is a possibility that there were children under the age of criminal responsibility, and the rate of intergenerational incarceration was underestimated. Moreover, because reporting multiple effects estimates from a single model may lead to misinterpretation, statistical models that carefully consider the type of effects estimated are needed to further examine the associations between covariates and dependent variables. Additionally, due to the lack of established timing ordering, causal relationships between maternal incarceration trajectories and intergenerational incarceration cannot be inferred. Lastly, since the collection of SISFCF, social changes and criminal justice reform have narrowed the racial gap in incarceration. However, this probably will not impact the association between maternal incarceration trajectories and intergenerational imprisonment, which is the theme of this research.

5. Conclusions

Despite these limitations, this research represents the first endeavor to examine the association between maternal incarceration trajectories and children's risk of incarceration. It identified the type of maternal imprisonment trajectory most detrimental to children and laid the foundation for future social work research to use comprehensive longitudinal measures to understand the effects of maternal incarceration. Findings suggest that policy and legislation changes that endorse rehabilitative interventions rather than punishment-oriented interventions may lower the odds of intergenerational incarceration. Prevention programs that target the unique challenges of mothers following the young-adulthood-peak trajectory can also be useful in interrupting the intergenerational transmission of imprisonment. Furthermore, criminal justice reform that takes into consideration of systematic racism and socioeconomic inequalities is needed to reduce criminal justice involvement of children from marginalized communities in the United States.

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CRedit authorship contribution statement

Qianwei Zhao: Conceptualization, Methodology, Formal analysis, Writing - original draft, Funding acquisition, Software. **Alice Cepeda:** Writing - review & editing, Supervision. **Chih-Ping Chou:** Methodology, Writing - review & editing. **Avelardo Valdez:** Writing - review & editing, Supervision.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary material

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.childyouth.2020.105461>.

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