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The J. Jeffrey and Ann Marie Fox Graduate School

**AGING OUT OF FOSTER CARE: A COMPREHENSIVE ANALYSIS OF DUAL-  
SYSTEM IMPACT OF “SYSTEM INTEGRATION” POLICY ON INCARCERATION  
OUTCOMES IN EARLY ADULTHOOD**

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by  
Mayra Solis

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The thesis of Mayra Solis was reviewed and approved by the following:

Christian M. Connell  
Professor of Human Development and Family Studies  
Thesis Advisor

Jennifer L. Maggs  
Professor of Human Development and Family Studies

Douglas M. Teti  
Professor of Human Development and Family Studies  
Head of the Department

## ABSTRACT

This study investigates predictors of youth reincarceration, focusing on demographic, socio-economic, foster care placement-related factors, and state juvenile justice policies. Using multilevel analyses on data from the National Youth in Transition Database (NYTD) and the Adoption and Foster Care Analysis and Reporting System (AFCARS), key predictors (e.g., Cohort Year, Gender, Sexual Abuse History, and Foster Care Placement Setting) of incarceration at ages 19 and 21 were identified, among a cohort of youth with a history of incarceration prior to age 19. The sample consisted of 10,859 youth, with 53% male and 47% female participants. In terms of race/ethnicity, the sample included 40% White, 30% Black/African American, 20% Hispanic, and 10% identifying as other racial or ethnic groups. Results show that gender and cohort year significantly predicted incarceration risk, with males and younger (e.g., year 2014) cohorts being more likely to be incarcerated. Additionally, a history of sexual abuse was associated with lower odds of incarceration, contrary to expectations. Foster Care placement settings also emerged as significant, with youth placed in pre-adoptive home, foster home with relative, and foster home with non-relative showed significantly reduced odds of incarceration compared to those in category group home/institution. Further, state juvenile justice policies did not seem to play a role on future incarceration outcomes for adolescents. Despite its contributions, the study is limited by missing data and the variables available in the datasets. The findings underscore the importance of both individual and systemic factors in shaping incarceration outcomes, highlighting the need for targeted interventions and policy reforms to reduce youth incarceration and support vulnerable populations.

*Keywords:* youth, dual status, dually involved, foster care placement, juvenile justice system

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## 1. Introduction

Many young individuals experience involvement in both the juvenile justice system (JJS) and the child welfare system (CWS) before reaching adulthood. According to Herz et al. (2010), approximately 45% to 70% of youth in the juvenile justice system have had prior involvement with the child welfare system. Adolescents who find themselves formally involved in both the JJS and CWS as a result of both delinquent behavior and experiencing child maltreatment, respectively, are commonly described as "dual system" or "dually involved" youth (Herz & Dierkhising, 2019). The United States' approach to managing juvenile justice and child welfare for youths involves a complex system with varied policies and practices across different states. Coordination between the JJS and CWS is crucial to address the needs of dual-status or dual-system youth effectively. In this analysis, I will focus on identifying key predictors of reincarceration risks for dual system youth aging out of foster care, examining factors that contribute to their likelihood of being incarcerated again at ages 19 and 21.

Youth who experience involvement in both the JJS and the CWS are at a heightened risk for adverse outcomes later in life (Modrowski et al., 2023). Negative outcomes include aging out of care without employment, having lower rates of high school/GED completion, lower rates of postsecondary enrollment, postsecondary graduation, and being reincarcerated (Colman et al., 2010a; Copeland et al., 2023; Modrowski et al., 2023; Prince et al., 2019). Youth engaged with the JJS who self-report dual-system involvement exhibit markedly greater exposure to traumatic events, more pronounced posttraumatic stress symptoms, and a higher degree of self-reported offending (Modrowski, 2023). Navigating the complexities of two intertwined systems, each with its own set of demands and interventions, can significantly impact the life trajectory of these young individuals. The consequences of this dual involvement are far-reaching. They can



reverberate through various aspects of their lives, affecting their personal well-being and the broader social fabric. Understanding these risks is paramount to formulating effective policies, programs, and support systems that empower these adolescents and help them overcome the obstacles that stand in the way of a brighter future.

The initial focus in this study examines the complexities faced by dual-status youth navigating both the child protection system and JJS. These individuals require protection from neglectful or abusive caregivers while simultaneously or subsequently grappling with legal issues. Addressing how states collaborate and share information when dealing with dual-status youth has emerged as a prominent concern in juvenile justice improvement since the early 2000s (Herz & Dierkhising, 2019). Despite this recognition, there remains a dearth of knowledge regarding the diverse strategies implemented by states and the extent to which data is annually reported to examine the issue at a national or state-specific level comprehensively. The organizational structure of child welfare and juvenile justice administration varies significantly across states, potentially influencing a state's capacity to coordinate services between these two systems (Glisson, Dukes, & Green, 2006). States that centralize administration through a single state-level department, observed in seven states, may mitigate structural barriers to coordination. However, in nearly half of the states, aspects of child protection or key juvenile justice interventions are decentralized, introducing additional complexities to effective coordination.

### *1.1 Child Welfare and Juvenile Justice Systems*

The Child Welfare System typically intervenes when a child is in an unsafe environment, placing them in foster care or other protective settings, and offering support to families to prevent the recurrence of harm. On the other hand, the Juvenile Justice System focuses on youth who have been accused of delinquent acts or crimes, with a goal of rehabilitation and

accountability rather than punishment. It provides legal processes, detention, and rehabilitative services such as counseling and education, aiming to reduce recidivism and help youth reintegrate into society as productive members. Both systems play critical roles in the lives of vulnerable children and youth, often intersecting when youth involved in child welfare also engage with the juvenile justice system, creating a "dual system" population.

### *1.2 Cross-System Collaboration*

Effective communication between child welfare and juvenile justice offices is crucial for several reasons (Gordon et al., 2016). Collaboration ensures a comprehensive understanding of cases involving children who may be involved in both systems. This holistic perspective allows for better-informed decisions regarding the well-being and rehabilitation of the youth. Timely sharing of information can contribute to the swift identification of risks and vulnerabilities that children may face (U.S. Department of Justice, 2019). This proactive approach enables prompt interventions and ensures the safety and well-being of the children involved. Joint communication allows for a more informed decision-making process. Professionals from both systems can bring their expertise to the table, fostering a collaborative approach that considers the nuances of each case and promotes better outcomes for the adolescents involved (Bazelon Center for Mental Health Law, 2015). Effective communication between child welfare and juvenile justice offices is essential for creating a cohesive and supportive framework that prioritizes the well-being and rehabilitation of young individuals within the complex interplay of these interconnected systems. This type of communication can promote the success of an adolescent who is dually involved.

Dual-system youth are often unrecognized by the JJS and CWS simultaneously due to weaknesses in information-sharing databases and cross-system collaboration (Herz, Ryan, and

Bilchik, 2010; Vidal et al., 2019), making implementing interventions targeting this population challenging. Cross-system collaboration is essential for providing holistic and integrated care to dual-system youths. When these collaborations are lacking or ineffective, they create gaps in services and support, potentially exacerbating the underlying issues contributing to their involvement in both systems. Recognizing and addressing these challenges in information-sharing and collaboration is crucial for improving outcomes for dual-system youths and ensuring that interventions are comprehensive, targeted, and responsive to their complex situations. Efforts to enhance communication and coordination between the JJS and CWS are essential to systemic improvements in the care and support of these vulnerable individuals.

### *1.3 States System Integration*

The organization of child welfare and juvenile justice administration varies significantly from one state to another, and this variation can impact a state's capacity to coordinate services between these two systems (National Center for Juvenile Justice [NCJJ], 2016). While state practices differ, several states have established a more unified approach to managing CWS and JJS. The distinctions between agency integration models in child welfare and juvenile justice are critical to understanding how services are coordinated for dual system youth, particularly those at risk of reincarceration. These distinctions can be grouped into four broad categories. Single Agency Integration allows for a more streamlined approach, where both child welfare and juvenile corrections responsibilities are managed within a single entity, potentially reducing communication gaps and improving service continuity. Umbrella Agency Integration, on the other hand, places child welfare and juvenile corrections under the same administrative body but in separate divisions, which may help ensure specialized attention while still fostering interagency coordination. Separate State-Level Centralized Agencies manage each

responsibility—child welfare, juvenile corrections, and probation—individually, which could lead to challenges in coordination but offers focused expertise in each area. Decentralized agencies, operating at local levels, introduce further variability in service delivery, potentially complicating coordination across jurisdictions. The differences in state-level child welfare and juvenile justice integration models can significantly influence re-incarceration rates among dual-status youth for several reasons. In models like Single Agency Integration communication gaps are minimized. This allows for more coordinated case management and continuity of care, reducing the likelihood that youth will fall through the cracks and end up re-incarcerated. Meanwhile agencies like Umbrella Agency Integration, Separate State-Level Centralized Agencies, and Decentralized may create silos, where child welfare and juvenile justice agencies operate independently. This lack of coordination can result in inconsistent tracking of youth across systems, making it harder to intervene early and prevent re-incarceration (Ryan et al., 2013).

Understanding these models is vital because the level of integration between child welfare and juvenile justice systems can directly impact the quality of care and rehabilitation for youth transitioning out of foster care, especially those involved in both systems. By 2016, seven states had established a unified state-level department responsible (e.g., Single Agency Integration) for child welfare and juvenile justice, while eight states had a public welfare agency overseeing these sectors, although often as distinct divisions (Juvenile Justice Geography, Policy, Practice & Statistics [JJGPS], 2016). In contrast, 11 states maintained separate state-level entities for child welfare, juvenile corrections, and probation, and 25 states had child welfare or juvenile probation responsibilities organized at the local level (see Table 1) (Juvenile Justice Geography, Policy, Practice & Statistics [JJGPS], 2016).

### *1.4 Foster Care Beyond Age 18*

Every state now allows adolescents who are in foster care to extend their care beyond 18 years of age with certain conditions. All states allow care to be extended to age 21 with the condition of working full-time or part-time and being involved in a diploma, general equivalency diploma (GED), or vocational program (State Statutes Search - Child Welfare Information Gateway, 2022). Some states (e.g., Indiana) have implemented 'collaborative care,' where the court rules that a youth 18 years or older can stay in care if they meet specific requirements. Requirements include that the youth is employed, attending school or a vocational or educational certification or degree program, participating in a program or activity designed to promote or remove barriers to employment, or being incapable of performing any of the preceding activities due to a medical condition documented by regularly updated information in the older youth's current case plan (State Statutes Search - Child Welfare Information Gateway, 2022). Extending foster care beyond age 18, as described, helps provide youth with critical stability and support during their transition to adulthood, potentially lowering their risk of re-incarceration. Research suggests that youth aging out of foster care without adequate support face heightened risks of homelessness, unemployment, and criminal involvement (Dworsky et al., 2012; Prince et al., 2019).

### *1.5 Dual-system and Incarceration Outcomes*

Youth with dual involvement in both the CWS and JJS face an elevated risk of reincarceration, compared to adolescents who only experience JJS involvement, a concerning consequence of their complex circumstances (Colman et al., 2010b). The intertwining challenges they experience, often rooted in traumatic experiences, disrupted education, and foster care placement instability, can lead some down a path that intersects with the criminal justice system.

Incarceration can disrupt their transition to adulthood and thereby perpetuates a cycle of legal involvement (Lambie & Randell, 2013). To break this cycle, it is essential to understand the unique needs of dual-system youth and implement tailored interventions, support systems, and policy reforms that address the underlying issues contributing to their increased risk of incarceration (Church et al., 2014). By doing so, we can work toward reducing the prevalence of incarceration among this vulnerable population and offer them a brighter future with more favorable prospects.

### *1.6 Dual-system and Education*

Dual-system youth are often confronted with a host of adverse outcomes, and their educational trajectories are no exception (Keenan & Choi, 2024). The instability and frequent changes, due to changes in foster care placement, such as moving between foster homes, group homes, or juvenile justice facilities that characterize their lives can disrupt their schooling, resulting in lower educational attainment (Lee & Villagrana, 2015). The trauma, stress, and emotional challenges they face can affect their ability to engage in learning (Abbott & Barnett, 2016). This can lead to lower academic performance, absenteeism, and a higher risk of dropping out of school altogether (Abbott & Barnett, 2016). The disrupted education of these youth can limit their future opportunities, as it may be challenging to access higher education or secure employment that requires specific educational qualifications (Herz et al., 2012). A stable and supportive educational environment plays a crucial role in reducing the likelihood of reoffending by equipping these adolescents with the knowledge, skills, and social support needed to build a more promising future (Herz et al., 2012). Investing in their education is a key strategy for breaking the cycle of system involvement and reducing their long-term risk of reincarceration. Ensuring that these adolescents have the opportunity to receive a quality education is essential

for breaking the cycle of dual-system involvement and providing them with the tools they need to build a more promising future.

### *1.7 Dual-system and Employment*

The negative outcomes for dual-system youth can be substantial, including a higher likelihood of unemployment or underemployment (Prince et al., 2019). During childhood and adolescence, frequent transitions between foster care placements, the disruption of stable relationships, and interrupted education can make it exceedingly difficult for youth to develop the skills and stability necessary for meaningful and sustainable employment (Washington, 2023). As a result, many of these youth risk experiencing prolonged joblessness, leading to financial instability and dependence on public assistance programs (Byrne et al., 2014). This employment-related turmoil can hinder their ability to break free from the cycle of involvement with these systems. It can have long-lasting implications for their economic self-sufficiency and overall well-being. Therefore, addressing the employment challenges of dual-system youth is crucial for ensuring their successful transition to adulthood and preventing further entanglement with the justice system. Adolescents who find themselves entangled in both the CWS and JJS often face a challenging and tumultuous path regarding their employment trajectories (Gibson et al., 2023).

### *1.8 Dual-system and Sexual Abuse*

Adolescents who have experienced sexual abuse are at a higher risk of involvement with the juvenile justice system, particularly when they are already involved in the child welfare system (Crosby et al., 2023; National Institute of Justice, 2023). These youth often exhibit behavioral problems and emotional difficulties, such as post-traumatic stress, which increase their likelihood of offending and facing severe court outcomes (Crosby et al., 2023). The trauma from

sexual abuse contributes to emotional dysregulation and coping difficulties, exacerbating risky behaviors that result in repeated offenses and incarceration (Office of Justice Programs, 2023). Consequently, trauma-informed care and targeted interventions are essential to address the cyclical relationship between victimization and offending among these dually involved adolescents (National Institute of Justice, 2023).



## 2. Current Study

Dual-system youth face unique challenges in their transition to adulthood. This vulnerable population often grapples with a history of dual involvement in the CWS and JJS, which can significantly impact their life trajectories. This study aims to investigate the effects of system integration in the United States on the outcomes of adolescents who age out of foster care by ages 19 or 21, specifically focusing on their reincarceration rates. Different agencies in the United States are defined as Single Agency Integration, Umbrella Agency Integration (separate division/offices), Separate State-level Centralized Agencies, and Decentralized Agencies. Data from the National Youth in Transition Database (NYTD) and the Adoption and Foster Care Analysis and Reporting System (AFCARS) will be analyzed to identify disparities between states in reincarceration rates. I hypothesize that states with Umbrella Agency Integration, Separate State-level Centralized Agencies, and those with one or all Decentralized Agencies will have more adolescents aging out with higher risk of being reincarcerated than youth living in Single Agency Integration states. To assess the reincarceration outcome of adolescents who have dual system involvement, we will identify integration policy variation by analyzing NYTD and AFCARS data. Youth were surveyed at ages 17, 19, and 21.

By examining specific outcomes related to reincarceration associated with variation in policies related to the management of the two overlapping CWS and JJS systems, we intend to shed light on which integration models are most effective and why. Our findings will contribute to the academic understanding of this issue and offer practical policy recommendations that can lead to improved outcomes for these vulnerable adolescents. Ultimately, this research has the potential to positively impact the lives of dual-system youth and promote more effective integration practices within CWS and JJS nationwide.

The present study aims to answer the following question:

- 1) What are the effects of individual child and case characteristics on reincarceration outcomes for young adults (at ages 19 and 21) with a history of dual-system involvement and involved in foster care placement at age 17?
  - a) Hypothesis: Dually involved male youth, historically marginalized population groups, type of foster care placement (e.g., Group Home/Incarceration), educational attainment, and employment will differ in their young adult outcomes, leading to differences in reincarceration rates among individuals with dual system involvement.
- 2) What are the effects of state-level administrative structure for child welfare and juvenile justice systems (e.g., Single Agency Integration, Umbrella Agency Integration, Separate State-level Agencies, and Decentralized Agencies) on young adult outcome for this population?
  - b) Hypothesis: We hypothesize that Single Agency Integration States will have lower rates of reincarceration compared to Umbrella Agency Integration, Separate State-level Centralized Agencies, and One or all are Decentralized for adolescents aging out of foster care at 19 or 21 years old. Umbrella Agency Integration, Separate State-level Centralized Agencies, and Decentralized will see a higher rate of reincarceration rates.

### **3. Methods**

#### *3.1 Data Sources and Procedures*

Records from the NYTD were matched using unique case IDs with the AFCARS. To facilitate merging the datasets, both the NYTD and AFCARS files were sorted by the same variables: state (st) and record number (recnumbr). These identifiers ensured accurate matching of records from both systems, reflecting the same individuals across datasets. NYTD and AFCARS will be used to obtain information on adolescents' date of birth, sex, and race. These three variables will help identify disparities between adolescents in different states. Both AFCARS and NYTD provide information on the state where the data is collected. We connected the Systems Integration Policy with both datasets using the State Two-Character code AFCARS variable and the NYTD Two-letter USPS code for each state (e.g., PA., CO., and CA.)

#### *3.2 a. NYTD*

The Chafee Foster Care Independence Program (CFCIP) established NYTD and requires all 50 states, the District of Columbia, and Puerto Rico to collect data on well-being outcomes (e.g., reincarceration) and services provided to older youths (e.g., ages 18-21) in foster care. States began reporting these data to the Administration for Children and Families (ACF) in 2011 (Children's Bureau, Administration on Children, Youth and Families, ACF, U.S. Department of Health and Human Services, 2022). Data from surveys completed by adolescents is available every other year beginning with the federal fiscal year 2011 (Oct 1, 2010, through Sep 30, 2011). Subsequent cohorts were enrolled triennially, starting with the initial cohort in FY2011 and continuing in 2014, 2017, 2020, and 2023. The inaugural cohort of NYTD consists of youth who were 17 years of age during a fiscal year and were in a foster care placement within 45 days of their 17th birthday. Youth who participated in the 17-year-old outcomes survey were eligible to

participate at age 19 and then again at age 21. In 2017, the NYTD survey had a national response rate of 66% for 17-year-olds.

The study employed secondary analyses of the NYTD data Outcomes Survey, Cohort Age 17 in fiscal year 2017, waves 1-3 and Outcomes Survey, Cohort Age 17 in fiscal year 2014, Waves 1-3. Adolescents from this cohort were selected based on having answered "Yes" to the survey question asking if, at age 17, they had experienced any lifetime experience of incarceration. After selecting every adolescent who responded "yes" to the incarceration variable in wave 1, we looked at those adolescents' race/ethnicity, education at age 17 (wave 1), employment at age 17 (wave 1), foster care status, and removal reason responses. In waves 2 and 3 of the NYTD dataset we looked at reincarceration rates. In this study we combined current full-time and part-time employment for each wave (e.g., Wave 1, age 17, employed "yes" or "no"). Foster care status at ages 19 and 21 was assessed by looking if they were in placement at the time ("The youth is in foster care if the youth is under the placement and care responsibility of the State" by answering "Yes" or "No").

### *3.2 b. AFCARS*

The AFCARS is overseen and managed by the Children's Bureau (CB) within the Administration for Children and Families (ACF), a division of the Department of Health and Human Services (HHS). State and Tribal title IV-E agencies are mandated, as per §479 of the Social Security Act, to submit case-level information to AFCARS for all children in foster care and those adopted with Title IV-E agency involvement. Regulatory updates were implemented through the final rule published in May 2020. In this study, the methods employed the AFCARS dataset, a comprehensive source of information. Key variables utilized in the analysis included the removal reason and current foster care placement settings. These variables were crucial in

obtaining detailed information on the involvement and placement settings in foster care of adolescents. The analysis focused on assessing the temporal aspects of removal, the reasons behind each removal, how removal occurred, and the current foster care placement settings of the adolescents under investigation. Using these AFCARS variables allowed for a nuanced exploration of the adolescents' experiences within the foster care system.

### *3.3 Measures*

The primary outcome variable in this study is reincarceration at ages 19 and 21, assessed using the NYTD dataset. Reincarceration is defined as any instance of confinement in a jail, prison, correctional facility, or juvenile detention center within the past two years for youth with a prior history of incarceration. This variable was operationalized dichotomously, with youth who were reincarcerated coded as 1, and those who were not coded as 0. The focus of this measure is to capture the recurrence of involvement with the justice system among youth aging out of foster care.

Several covariates were included to account for individual characteristics that may affect reincarceration outcomes. Demographic variables include sex (coded as 0 for male and 1 for female), race/ethnicity (categorized into Hispanic, Black/African American, White, and Other/Multiple Races; Ref. 'White'), and cohort, which was measured by year (e.g., 2014 or 2017). Demographic and race/ethnicity variables came from both the NYTD and AFCARS dataset. The cohort variable was created to reflect the adolescents in the dataset in 2014 and 2017 (2014 = 0; 2017 = 1). Child welfare involvement was measured by the number of Current Foster Care Placement Settings by age 17 that they experience in their life, it is a categorical (nominal) variable because it represents different types of living arrangements or foster care placement settings for a child, each indicated by a numeric code. In addition, juvenile justice involvement

(used to select the targeted sample) was measured by prior incarceration history (coded as 1 for youth incarcerated by age 17, 0 for no incarceration history). Participants current placement settings (e.g., Pre-Adoptive Home, Foster home with relative, Foster home with non-relative, Group home/ Institution, Supervised independent living, Runaway, and Trial home visit) was also used, with Group home/Institution being the reference group. Lastly, we used removal reason (e.g., physical abuse, neglect, parental incarceration, sexual abuse, alcohol and drug abuse by parent, alcohol abuse by the child, drug abuse by the child, child disability, child behavioral problems, parent death, parent incarceration, caretaker inability to cope, abandonment, relinquishment, and inadequate housing) to understand why the child was placed in foster care. Each removal reason is coded as 0 does not apply and 1 applies. Foster care status was also used to see if an adolescent remained in care at age 19 and 21, coded as 0 no longer in care and 1 yes remains in care.

State-level policy variables were included to capture the broader system-level influences on reincarceration outcomes. System integration refers to the structure of state agencies responsible for child welfare and juvenile justice services. States were categorized into four types: Single Agency Integration (where child welfare and juvenile justice duties are housed within a Single Agency), Umbrella Agency Integration (where these duties fall under separate divisions within the same agency), Separate State-Level Centralized Agencies (where distinct state-level organizations manage child welfare, juvenile justice, and probation), and Decentralized Agencies (where child welfare or juvenile probation responsibilities are organized locally and separately) (see Figure 1).

These measures collectively allow for a detailed examination of how both individual-level characteristics and state policy environments predict the risk of reincarceration among dual-system youth transitioning out of foster care.

### *3.4 Participants*

This study includes U.S. adolescents aged 17, in 2017 and 2014, living in the 50 states or the District of Columbia who were in the Foster Care system at the time of the baseline survey. Youth ( $n = 10,859$ ) are as the unit of analysis. They must have entered the foster care system at least 45 days prior to their 17th birthday and completed the survey during the 45-day period following their 17th birthday. Adolescents must have also answered “yes” to the question of having a lifetime experience of incarceration (before the age of 17 years old) in the NYTD dataset (see Table 2).

Attrition analyses. When comparing youth who had complete data at all three waves ( $n = 10,883$ ) to those who had missing data at waves 2 and/or 3 ( $n = 2815$ ), significant differences were found (See Table 4). In the conducted attrition analysis, we explored the relationship between various factors, including current placement settings and foster care status, with the completeness of data among participants. The analysis revealed significant associations across the different variables analyzed. For the current placement setting, the chi-square test showed a highly significant relationship with a chi-square value of 84.53 ( $p < 0.0001$ ), indicating that individuals in different placement settings exhibited varying levels of data completeness. Similarly, the analysis of foster care status at outcomes collection revealed a strong association, with a chi-square value of 2436.59 ( $p < 0.0001$ ). These findings underscore the importance of understanding the factors contributing to attrition in longitudinal studies, as they can inform strategies to enhance data retention and quality in future research. It's important to highlight that

the analysis revealed a substantial percentage of missing data for housing status (approximately 10%), which may have influenced the validity of the chi-square test results for that variable.

These findings emphasize the necessity of addressing data completeness to better understand the factors impacting youth outcomes in foster care and related contexts.

### *3.5 Analytic Strategy*

All analyses will be performed using SAS version 9.4 (2023). Adolescents were nested within states (n=51). We employed Multilevel Modeling to conduct this analysis. Multilevel modeling considers the interdependence or nested structure of the data (e.g., youth grouped by state), addressing the violation of the independence assumption that would occur if these variables were treated as entirely independent of each other. The missing strategy that is used for this study is listwise deletion. Statistical models employing logistic regression were computed for each of the outcomes at ages 19 and 21 (focusing on reincarceration), incorporating random coefficients (See Table 3). Data were analyzed assuming a two-level structure, with dual system involved youth nested within states.



## 4. Results

### *4.1 Individual Child and Case Characteristics*

A logistic regression analysis was conducted to examine the factors associated with incarceration status at ages 19 and 21 among adolescents. The analysis included a total of 4,184 observations, with 2,757 (65.8%) participants experiencing incarceration and 1,427 (34.2%) not experiencing incarceration. The model achieved convergence with a log-likelihood of -4,296.344, and the likelihood ratio test indicated that the model significantly improved fit compared to the intercept-only model ( $\chi^2(32) = 498.465, p < 0.0001$ ).

Looking first at the case level predictors, the analysis of maximum likelihood estimates revealed that being male was positively associated with incarceration, with a significant odds ratio of 2.508 (95% CI: 2.162, 2.910), indicating that males were more than two and a half times as likely to be reincarcerated compared to females. Additionally, likelihood of reincarceration differed by cohort (OR = 0.775, 95% CI: 0.669, 0.896), with participants in Cohort 1 (2017) having a lower likelihood of reincarceration compared to those in Cohort 0 (2014). Employment status also played a crucial role, with employed participants having lower odds of reincarceration (OR = 0.675, 95% CI: 0.551, 0.827) compared to their unemployed counterparts.

Interestingly, the analysis indicated that experiences of sexual abuse were associated with a lower likelihood of reincarceration (OR = 0.600, 95% CI: 0.434, 0.829), while other abuse types and neglect were not significantly associated with reincarceration status. Among the categorical variables related to placement status, significant differences were noted. Participants currently placed in Pre-adoptive home, Foster home with relative, and Foster home with non-relative showed significantly lower odds of incarceration compared to those in category Group

home/Institution, with odds ratios of 0.369 ( $p = 0.008$ ), 0.608 ( $p = 0.0005$ ), and 0.591 ( $p < 0.0001$ ), respectively.

Furthermore, race/ethnicity categories did not demonstrate significant associations with incarceration status, as indicated by a combined Chi-Square value of 2.637 ( $p = 0.852$ ). Overall, these findings suggest that some demographic factors, employment status, and placement circumstances were significantly associated with the likelihood of incarceration among the sample population.

Lastly, participants' foster care status at age 19 and at age 21 were significantly associated with incarceration, with odds ratios of 0.478 ( $p < 0.0001$ ) and 0.593 ( $p < 0.0001$ ), respectively, indicating that remaining in foster care was linked to lower reincarceration rates. The odds ratio of 0.478 suggests that participants who were in foster care at age 19 had approximately 52.2% lower odds of being reincarcerated compared to those who were not in foster care at that age. This is a statistically significant result ( $p < 0.0001$ ), indicating strong evidence that being in foster care is associated with a lower likelihood of reincarceration. Similarly, the odds ratio of 0.593 implies that those in foster care at age 21 had about 40.7% lower odds of reincarceration compared to their peers not in foster care.

#### *4.2 State-level administrative structure for Child Welfare and Juvenile Justice Systems*

Testing hypothesis 2, we aim to understand the effects of state-level administrative structure of child welfare and juvenile justice systems (e.g., Single Agency Integration, Umbrella Agency Integration, Separate State-level Agencies, and Decentralized Agencies) on young adult reincarceration. The odds ratio for the Decentralized policy type compared to the Single Agency structure was 1.101, though the confidence intervals ranged from 0.812 to 1.493. The Separate State policy type compared to the Single Agency type yielded an odds ratio of 0.812, with

confidence intervals between 0.578 and 1.140. Similarly, the Umbrella policy type compared to the Single Agency structure had an odds ratio of 0.948, with confidence intervals of 0.656 to 1.369, further indicating no significant difference in incarceration odds. These findings do not support the stated hypothesis that states with Single Agency Intergration policies would have less adolescents being reincarcerated after dual-system involvement.

## 5. Discussion

This study aimed to explore the predictors of reincarceration among youth in the context of various demographic, socio-economic, and foster care placement-related factors utilizing a binary logistic regression model to analyze data from the NYTD AFCARS sample. The logistic regression analyses revealed several key findings that contribute to our understanding of the factors influencing incarceration outcomes.

### *5.1 Key Predictors of Reincarceration*

One of the most significant predictors of reincarceration was sex of the youth. Males had significantly higher odds of being reincarcerated compared to females. This aligns with previous research that has consistently shown that men are more likely to experience incarceration (Glaze & Maruschak, 2008, Pettit & Western, 2004, Prince et al., 2019, Bureau of Justice Statistics, 2021). Gender-specific interventions may be warranted to address the unique needs and challenges faced by young males at risk of incarceration. Additionally, participants from the cohort born in 2000 were less likely to be reincarcerated than those born in 1997, which may suggest changes in criminal justice policies or in who received foster care placements. As cohorts may reflect changes in societal conditions, policies, and resources, future research should delve deeper into how these contextual factors affect youth outcomes over time.

In terms of employment status, employed participants were found to be less likely to be reincarcerated. This finding underscores the protective role of employment, which may provide not only financial stability but also a sense of purpose and engagement. Programs aimed at enhancing employment opportunities for youth may serve as effective preventive measures against incarceration.

Interestingly, the analysis revealed that experiences of sexual abuse were associated with a lower likelihood of reincarceration. Despite this counterintuitive finding, it is well known that prior child maltreatment is associated with many later challenges in mental and physical health. Thus I agree with prior writers arguing for a critical need for trauma-informed care and support systems for youth who have experienced this type of abuse. Addressing the root causes of trauma and its long-term implications may be essential in mitigating the risk of incarceration, these youth often engage in substance use to cope, which can worsen emotional difficulties and disrupt academic performance (Child Mind Institute, 2024; WHO, 2024). Surprisingly factors like child behavioral problems was not significant. Prior research seems to show that child behavioral problems elevated the odds of criminal justice involvement (Prince et al., 2019).

Placement history also emerged as a significant factor, with different types of placements predicting the likelihood of incarceration. Specifically, placements classified as Supervised independent living, Runaway, and Trial home visit were associated with higher odds of incarceration compared to those in placement Group home/Institution. This suggests that the type and stability of foster care arrangements may be associated with the experiences and outcomes of youth in the system. Future efforts should focus on improving the quality and consistency of placements to foster better outcomes (Courtney et al., 2016).

While several other variables, such as physical abuse, neglect, and parental incarceration, were included in the model, they did not emerge as statistically significant predictors of incarceration between ages 19 and 21. Overall, these findings highlight the importance of gender, cohort effects, and specific childhood experiences in shaping incarceration risk during early adulthood.

In summary, this analysis provides evidence that reincarceration among US young adults aged 19-21 who were previously involved in the CWS and/or JJS is influenced by a variety of demographic, familial, and childhood factors. The findings underscore the need for targeted interventions that address both the immediate risk factors for incarceration and the broader systemic influences that disproportionately affect certain populations.

### *5.2 Systems Integration (Juvenile Justice and Child Welfare Systems)*

After running a logistic regression analysis model we concluded that there was no policy effect on youth reincarceration rates. Results suggested that adolescents in either Single Agency, Umbrella, Separate State, and Decentralized states do not differ in reincarceration rates. Those who live in Single Agency States do not have better outcomes compared to those living in Umbrella, Separate State, and Decentralized. This suggests that there are no statistically significant differences in the likelihood of being incarcerated at age 19 or 21 based on the different juvenile justice policy types.

## **Limitations and Future Directions**

Despite the valuable insights gained from this study, several limitations must be acknowledged. First, the use of secondary data from the NYTD and the AFCARS means that the variables available for analysis were predetermined by the data collection processes of these databases. This limits the ability to include additional relevant variables (such as income level, history of extended family incarceration, neighborhood characteristics, and type of offense committed by the youth) that could provide a more comprehensive understanding of the factors influencing incarceration outcomes. Furthermore, the study's reliance on self-reported data from the NYTD introduces potential biases related to recall accuracy and subjective interpretation of experiences, particularly in relation to sensitive topics like incarceration and abuse.

Another limitation is the issue of missing data, which is a common challenge in longitudinal studies. A significant portion of the dataset (approximately 66% of observations) was excluded from the analysis due to missing values, and attrition analyses showed that missingness was related to important variables such as foster placement location. This raises concerns about the generalizability of the findings. The high rates of missingness at ages 19 and 21 could lead to incomplete or biased results. Additionally, the study's focus on youth from the years 2014 and 2017 may not fully capture more recent trends or changes in policies and practices affecting dual-system youth.

Future research should aim to overcome these limitations by incorporating a broader range of variables and employing more robust data collection methods. Studies could benefit from exploring additional predictors and mediators of incarceration outcomes, including those related to mental health, substance use, and social support. Moreover, qualitative research methods, such as interviews or focus groups, could provide deeper insights into the lived

experiences of dual-system youth, complementing the quantitative findings. Future work should also consider evaluating more recent data to assess whether changes in policy or practice have influenced outcomes for this population. Additionally, future research should also explore the mechanisms through which juvenile justice policies and foster care placement settings impact incarceration outcomes. Qualitative research could complement quantitative findings by capturing the lived experiences of youth in different policy and placement contexts.

The results of this analysis provide critical insights for policymakers seeking to address issues related to incarceration and its impact on youth outcomes. Given the significant relationship observed between incarceration experiences and various factors, it is essential for policy initiatives to focus on early intervention and support programs aimed at at-risk youth. By prioritizing things such as mental health resources, educational support, and community-based rehabilitation programs, policymakers can mitigate the adverse effects of incarceration and promote positive development among young individuals. Furthermore, the substantial exclusion of observations due to missing data highlights the need for comprehensive data collection efforts that ensure all demographic groups are represented. This will enable more nuanced policy decisions that address the specific needs of marginalized populations. Ultimately, fostering collaboration among stakeholders, including educators, social services, and law enforcement, will be crucial in implementing effective strategies that enhance youth well-being and reduce recidivism rates.



## **Conclusion**

The findings of this study underscore the multifaceted nature of factors influencing youth incarceration. Gender, employment, and placement type all play significant roles in shaping reincarceration outcomes. These results highlight the importance of comprehensive, targeted interventions that address the specific needs of at-risk youth and promote positive, supportive environments. Policymakers and practitioners should consider these factors in their efforts to reduce youth reincarceration and support the well-being of vulnerable populations. Future research should continue to explore these relationships and assess the effectiveness of intervention strategies aimed at improving outcomes for youth in the juvenile justice system.

**Table 1**

## Agency Integration.

Single Agency Integration:	Integration of child welfare and juvenile corrections responsibility in one agency
Umbrella Agency Integration (separate division/offices):	A general public welfare agency overseeing child welfare and juvenile corrections, often in separate divisions.
Separate State-level Centralized Agencies:	Separate state-level organizations responsible for child welfare, juvenile corrections and probation.
One or all are Decentralized:	One or more of the child welfares, or juvenile probation responsibility is organized locally.

**Table 2**  
Descriptive Statistics (n = 10,859)

	N	Percentage (%)
Race/Ethnicity		
White	4534	41.75
Black or African American	3179	29.28
Hispanic or Latino Ethnicity	2108	19.41
American Indian or Alaska Native	193	1.78
Asian and Pacific Islander	67	0.62
Multiple	672	6.19
Unknown	106	0.98
Sex (Male)	6975	64.23
Cohort		
2014 (0)	5694	52.44
2017 (1)	5165	47.56
Education at Age 17	9238	85.11
Employment at Age 17	3658	33.68
Age 17		
Removal Reason (most recent FC Episode)		
Physical Abuse	900	9.27
Sexual Abuse	523	5.39
Neglect	3383	34.85
Alcohol Abuse Parent	354	3.65
Drug Abuse Parent	936	9.64
Alcohol Abuse Child	231	2.38
Drug Abuse Child	720	7.42
Child Disability	407	4.19
Child Behavior Problem	5351	55.13
Parent Death	108	1.11
Parent Incarceration	374	3.85
Caretaker Inability Cope	1811	18.66
Abandonment	1074	11.07
Relinquishment	208	2.14
Inadequate Housing	463	4.77
Placement Setting (Age 17)		
Non-relative foster home	2275	23.49
Relative foster home	710	7.33
Group home or institution	5191	53.60
Runaway	574	5.93
Trial home visit	636	6.57
Foster Care Status (Age 19)	1828	17.80
Foster Care Status (Age 21)	582	7.21
State Policy		
Single Agency Integration	770	7.09
Umbrella agency integration	949	8.74

Separate state-level centralized agencies	1661	15.30
One or all are decentralized	7479	68.87
Child-level Incarceration Outcomes		
Incarceration (Age 19)	1953	19.02
Incarceration (Age 21)	1450	17.97
Any Incarceration (post Age 17)	2757	25.39

**Table 3**

Logistic regression analysis for variables predicting reincarceration at age 19 and 21.

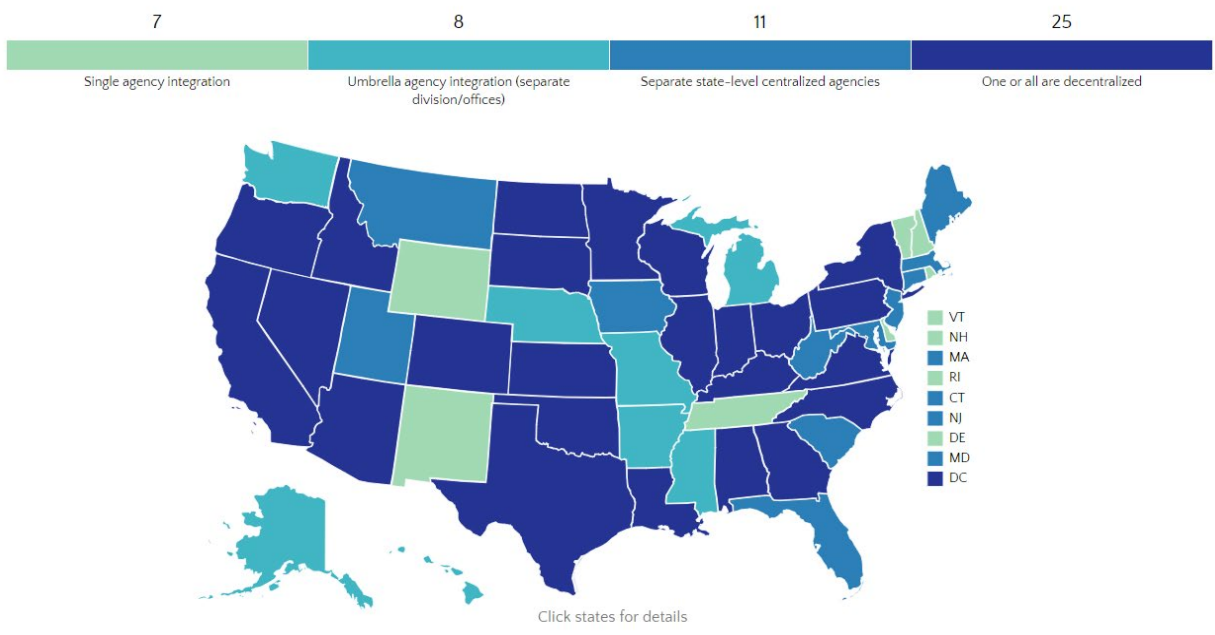
Predictors	Reincarceration						
	Model 2			Model 3			
	OR	95% CI	p-value	OR	95% CI	p-value	
Race/Ethnicity (ref 'White')							
American Indian/Alaska Native	1.351	0.807 to 2.261	0.2522	1.335	0.796 to 2.239	0.2729	
Asian/Hawaiian or Other Pacific Islander	1.133	0.409 to 3.140	0.8097	1.148	0.411 to 3.210	0.7923	
Black	1.073	0.893 to 1.288	0.4519	1.054	0.877 to 1.267	0.5732	
Hispanic	1.035	0.850 to 1.261	0.7300	1.008	0.826 to 1.230	0.9405	
Multiple Races	1.198	0.886 to 1.619	0.2408	1.163	0.859 to 1.576	0.3279	
Unknown	1.019	0.429 to 2.422	0.9664	0.994	0.418 to 2.362	0.9891	
Sex (ref 'Female')	2.508	2.162 to 2.910	<.0001	2.521	2.171 to 2.926	< .0001	
Cohort (ref '2014')	0.775	0.669 to 0.896	0.0006	0.756	0.652 to 0.876	0.0002	
Employment at age 17	0.675	0.551 to 0.827	0.0001	0.668	0.545 to 0.819	0.0001	
Enrolled in education at age 17	0.795	0.588 to 1.076	0.1370	0.799	0.591 to 1.081	0.1459	
Removal Reason							
Physical Abuse	0.974	0.755 to 1.255	0.8369	0.976	0.757 to 1.259	0.8514	
Sexual Abuse	0.600	0.434 to 0.829	0.0019	0.603	0.436 to 0.833	0.0021	
Neglect	1.021	0.858 to 1.214	0.8168	1.024	0.861 to 1.218	0.7872	
Alcohol/Drug Abuse Parent	0.952	0.747 to 1.214	0.6918	0.952	0.746 to 1.215	0.6936	
Alcohol Abuse Child	1.542	0.824 to 2.886	0.1756	1.568	0.838 to 2.934	0.1590	
Drug Abuse Child	1.419	0.988 to 2.038	0.0578	1.409	0.981 to 2.024	0.0634	
Child Disability	0.681	0.462 to 1.005	0.0528	0.696	0.471 to 1.030	0.0700	
Child Behavioral Problems	1.181	0.991 to 1.408	0.0635	1.177	0.986 to 1.405	0.0720	

Parents Died		1.025	0.500 to 2.104	0.9453	1.057	0.513 to 2.175	0.8813
Parents in Jail		0.834	0.572 to 1.217	0.3468	0.837	0.573 to 1.222	0.3563
Caretaker Inability to Cope		1.017	0.845 to 1.223	0.8605	0.994	0.826 to 1.197	0.9504
Abandonment		1.118	0.874 to 1.431	0.3735	1.141	0.891 to 1.461	0.2960
Relinquishment		1.507	0.903 to 2.515	0.1168	1.554	0.926 to 2.608	0.0950
Inadequate Housing		0.869	0.609 to 1.240	0.4391	0.874	0.611 to 1.249	0.4585
Current Placement Setting (ref 'Group Home/Institution')							
Pre-adoptive home		0.369	0.175 to 0.777	0.0087	0.382	0.181 to 0.809	0.0120
Foster home, relative		0.608	0.460 to 0.804	0.0005	0.606	0.458 to 0.801	0.0004
Foster home, non- relative		0.591	0.496 to 0.705	<.0001	0.597	0.501 to 0.712	< .0001
Supervised independent living		0.564	0.367 to 0.867	0.0090	0.573	0.372 to 0.882	0.0113
Runaway		1.649	1.152 to 2.359	0.0062	1.643	1.148 to 2.353	0.0067
Trial home visit		0.901	0.634 to 1.281	0.5629	0.944	0.662 to 1.346	0.7492
Foster Care Status at age 19		0.478	0.395 to 0.578	<.0001	0.473	0.391 to 0.574	< .0001
Foster Care Status at age 21		0.593	0.458 to 0.768	<.0001	0.587	0.453 to 0.761	< .0001
State Policy (ref 'Single Agency Integration')							
Umbrella Agency Integration (Separate Division/Offices)					0.948	0.656 to 1.369	0.7746
Separate State-level Centralized Agencies					0.812	0.578 to 1.140	0.2282
Decentralized					1.101	0.812 to 1.493	0.5364

**Table 4**  
**Attrition Analysis**

<b>Variables</b>	<b>Complete Data (n)</b>	<b>Incomplete Data (n)</b>	<b>Total (n)</b>	<b>Chi-Square (<math>\chi^2</math>)</b>	<b>DF</b>	<b>p-value</b>	<b>Significant Difference</b>
White	4197	6686	10883	10.1475	2	0.0063	Y
Black or African American Ethnicity	4197	6686	10883	22.5632	2	<.0001	Y
Hispanic or Latino Ethnicity	4197	6686	10886	44.1107	4	<.0001	Y
Native Hawaiian Or Other Pacific Island	4197	6686	10883	13.4494	2	0.0012	Y
Asian	4197	6686	10883	11.1208	2	0.0038	Y
American Indian or Alaskan Native	4197	6686	10883	12.473	2	0.002	Y
Current Enrollment And Attendance	4197	6686	10883	4.05	3	0.2565	N
Current Part-Time Employment	4197	6686	10883	5.18	3	0.1593	N
Current Full Time Employment	4197	6686	10883	3.08	3	0.3797	N
Relinquishment	4197	6686	10883	4.28	2	0.1176	N
Abandonment	4197	6686	10883	15.21	2	0.0005	Y
Caretaker Inability to Cope	4197	6686	10883	8.51	2	0.0142	Y
Parent Incarceration	4197	6686	10883	4.61	2	0.0998	N
Parent Death	4197	6686	10883	5.25	2	0.0725	N
Child Behavior Problem	4197	6686	10883	11.8	2	0.0027	Y
Child Disability	4197	6686	10883	8.73	2	0.0127	Y
Drug Abuse Child	4197	6686	10883	12.5	2	0.0019	Y
Alcohol Abuse Child	4197	6686	10883	4.9	2	0.0864	N
Drug Abuse by Parent	4197	6686	10883	12.28	2	0.0022	Y
Alcohol Abuse by Parent	4197	6686	10883	4.29	2	0.117	N
Neglect	4197	6686	10883	7.32	2	0.0258	Y
Sexual Abuse	4197	6686	10883	6.85	2	0.0325	Y
Physical Abuse	4197	6686	10883	4.89	2	0.0866	N
Housing	4197	6686	10883	6.85	2	0.0325	Y
Current Placement Setting	4197	6686	10883	84.53	9	<.0001	Y
OutcmFCS_2	4197	6686	10883	487.74	2	<.0001	Y
OutcmFCS_3	4197	6686	10883	2436.59	2	<.0001	Y

**Figure 1**  
Systems Integration by States



Citation  
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