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Dual system youth and their pathways in Los Angeles County: A replication of the OJJDP Dual System Youth Study

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ABSTRACT

Background: The estimated number of youth who come into contact with both the child welfare and juvenile justice systems, or “dual system” youth, varies widely because studies use different methodologies. Recent work using linked administrative data shows promise for identifying a stable range of dual system rates, generalizable to other jurisdictions and useful for understanding the nature and timing of system involvement.

Objective: This study replicates the U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention (OJJDP) Dual System Youth Design Study methodology to explore dual system overlap and six distinct dual system pathways defined by the type (i.e., nonconcurrent or concurrent) and timing (i.e., first contact with child welfare or juvenile justice) of dual system contact in Los Angeles County.

Participants and setting: Using data from the Los Angeles Probation Department, a cohort of youth born in/after 1998 with a first juvenile justice petition between 2014 and 2016 was identified ($N = 6877$) and matched to statewide child welfare records between 1998 and 2017.

Method: Descriptive statistics were produced for dual system youth and pathways, and differences across groups were tested using chi-square and *t*-tests.

Results: Two-thirds of youth with a first juvenile justice petition interacted with the child welfare system. The majority of dual system youth did not have contact with both systems at the same time and nearly all dual system youth were involved with the child welfare system before the juvenile justice system. Female and Black youth were more likely to be dual system youth and to have more extensive involvement with the child welfare system. Probation experiences and outcomes were associated with the nature and chronicity of child welfare involvement.

Conclusion: Implementing a delinquency prevention continuum that starts with community-based supports and continues throughout all levels of child welfare and juvenile justice involvement is essential to disrupting dual system involvement.

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1. Introduction

Research consistently finds a significant amount of overlap between the child welfare and juvenile justice systems. Overall, prospective studies suggest between 7% and 30% of 10- to 18-year-olds in foster care enter the juvenile justice system (Bogie et al., 2011; Cutuli et al., 2016; Ryan et al., 2007), while results from retrospective studies using juvenile justice system populations show between 30% and 80% have past child welfare involvement (Halemba et al., 2004; Halemba & Siegel, 2011; Herz et al., 2016). These studies bring attention to “dual system” involvement, but they do not yield reliable estimates because they use relatively small samples across jurisdictions; different definitions of dual system involvement; and variable timeframes for identifying involvement with both systems. Additionally, extant research typically analyzes dual system youth as one monolithic group without identifying and distinguishing the different ways dual system involvement can occur.

The absence of large-scale dual system youth studies using a consistent methodology and exploring the role of pathways significantly hinders the field’s ability to accurately understand who these youth are and the factors that lead them to dual system involvement. Inconsistent estimates of dual system involvement, for example, often lead policymakers and practitioners to view dual system youth as a marginal population within larger systems. Consequently, jurisdictions rarely prioritize interagency collaboration to intervene in dual system involvement and often overlook “up-stream” opportunities to prevent dual system involvement entirely. In turn, unmet service needs result in cumulative adversity and significant long-term consequences such as less permanency when they leave the child welfare system, and higher rates of homelessness, adult incarceration, and unemployment in young adulthood compared to young people who experienced only one system (Center for Innovation through Data Intelligence, 2015; Coulton et al., 2015; Culhane et al., 2011; Eastman & Putnam-Hornstein, 2018).

The federal government has long recognized the need for better data on dual system youth. The 2002 reauthorization of the Juvenile Justice Delinquency Prevention Act (JJDP) directed the Office of Juvenile Justice and Delinquency Prevention (OJJDP) to support more robust ways to understand the extent and nature of the intersection of child welfare and juvenile justice systems. In 2015, OJJDP funded the Dual System Youth Design Study (DSYS; Herz & Dierkhising, 2019) to explore the utility of linked administrative data to produce dual system incidence rates and the feasibility of replicating this approach to produce a national, representative incidence rate. A key component of the DSYS was developing a definitional framework to bring terminology currently used in research and practice into alignment and to identify six dual system pathways distinguished by the type of system contact (e.g., nonconcurrent vs. concurrent dual system contact) and the timing contact (i.e., child welfare involvement first vs. juvenile justice involvement first). These definitions and pathways were then applied to linked administrative records for first juvenile justice petition cohorts in Cook County (Chicago), Illinois; Cuyahoga County (Cleveland), Ohio; and New York City, New York (Herz, Dierkhising, et al., 2019).

The findings across the DSYS sites were far more similar than different. Cuyahoga County and New York City had nearly identical dual system involvement rates (69% and 70%) while Cook County had a slightly lower rate (45%). Pathways to dual system involvement were apparent across all sites with nonconcurrent dual system contact occurring most often, and youth characteristics and system experiences varied across pathways in similar ways (Herz, Dierkhising, et al., 2019).

Although the DSYS findings confirmed the value of linked administrative data for identifying more stable rates for dual system youth, a national, representative study was deemed difficult and expensive due to questionable data availability and quality across jurisdictions (Green et al., 2019). In the absence of a full-scale, nationally representative study, the DSYS recommended replicating the study’s methodology in more jurisdictions to test whether the patterns found in the DSYS were also found in other jurisdictions. If studies across geographical areas produce similar rates using the same methodology, the collective results arguably establish a strong foundation to understand the prevalence of dual system youth nationally (Herz, Goerge, et al., 2019), and prioritize a national conversation on how to disrupt the relationship between child welfare and juvenile justice involvement. The current study responds to this call by replicating the DSYS methodology in Los Angeles County using data from the Los Angeles County Probation Department and the California Department of Social Services. The study measures the dual system incidence rate overall and by pathways in Los Angeles County; compares the characteristics of dual system youth across pathways; and compares these results to those produced for Cook County, Cuyahoga County, and New York City.

1.1. Defining dual system youth and dual system pathways

Young people involved in both the child welfare and juvenile justice systems are often referred to using various terms including (but not necessarily limited to): crossover youth, dual system youth, dually-adjudicated youth, dual contact youth, dually-involved youth, and dual status. Such a wide range of terms is problematic because they are often applied inconsistently to denote nonconcurrent and concurrent involvement, making it nearly impossible to clearly differentiate this population and identify specific ways to prevent dual system involvement from occurring (Herz, Dierkhising, et al., 2019). In 2012, Georgetown University’s Center for Juvenile Justice Reform defined four categories of crossover youth as part of their Crossover Youth Practice Model (Center for Juvenile Justice Reform, 2015), and the Robert F. Kennedy (RFK) Children’s Action Corps built upon this effort as part of their Dual Status Youth Reform Initiative (Tuell et al., 2013). Their collective definitions, in turn, inherently identified the dual system pathways often called for in extant literature but not yet clearly defined (Baidawi & Sheehan, 2019; Vidal et al., 2019).

The DSYS used these two frameworks as a starting place for its proposed definitional framework, reconciling conflicts between their terms and approaches. In doing so, the DSYS definitional framework uses “dual system youth” as a general term for all youth who come in contact with both the child welfare and juvenile justice systems at some point in their lives. Dual system pathways were then constructed from a consistent application of the type of system contact experienced and the timing of that contact. With regard to timing, dual system youth may have nonconcurrent or concurrent involvement with the child welfare and the juvenile justice systems.

Youth who interact with both systems nonconcurrently are referred to as “dual contact” youth, while “dually-involved” youth are involved in both systems concurrently.

As shown in Fig. 1, the intersection of dual system timing and the type of contact produces six dual system pathways. Youth with nonconcurrent contact with the child welfare system first were identified as dual contact child welfare youth (DCCW), and youth with nonconcurrent contact with the juvenile justice system first were classified as dual contact juvenile justice youth (DCJJ). Youth with concurrent system contact fell into four possible pathways. Youth who had contact with child welfare before juvenile justice were considered dually-involved child welfare youth (DICW) while those who also had a previous child welfare investigation were placed in the dually-involved child welfare with historical child welfare contact pathway (DICWH). Parallel pathways were created for youth who had contact with juvenile justice before child welfare: dually-involved juvenile justice youth (DIJJ) and dually-involved juvenile justice youth with historical child welfare contact (DIJH).

1.2. Key findings from the OJJDP dual systems youth study

The incidence of dual system youth across sites ranged from 44.8% in Cook County to 68.5% in Cuyahoga County and 70.3% in New York City (Herz, Dierkhising, et al., 2019). Regardless of site, more than half of dual system youth had nonconcurrent, child welfare-first involvement (DCCW), and dually-involved child welfare first pathways (DICW and/or DICWH) were the most prevalent concurrent pathways. Across all sites, dual system involvement for over 90% of youth started with the child welfare system whereas less than 10% entered the juvenile justice system without prior contact with the child welfare system.

Although specific rates varied across sites, the patterns from within site comparisons were strikingly similar (Herz, Dierkhising, et al., 2019). Without exception, the overrepresentation of Black dual system youth across sites was more than two to three times their representation in the general population and dual system rates for Black youth were also 12% to 43% greater than those for Black youth with no child welfare contact. The percentage of females was also significantly different between dual system and juvenile justice only youth. Females were 30% more likely to have dual system contact in Cook and Cuyahoga Counties and 68% more likely in

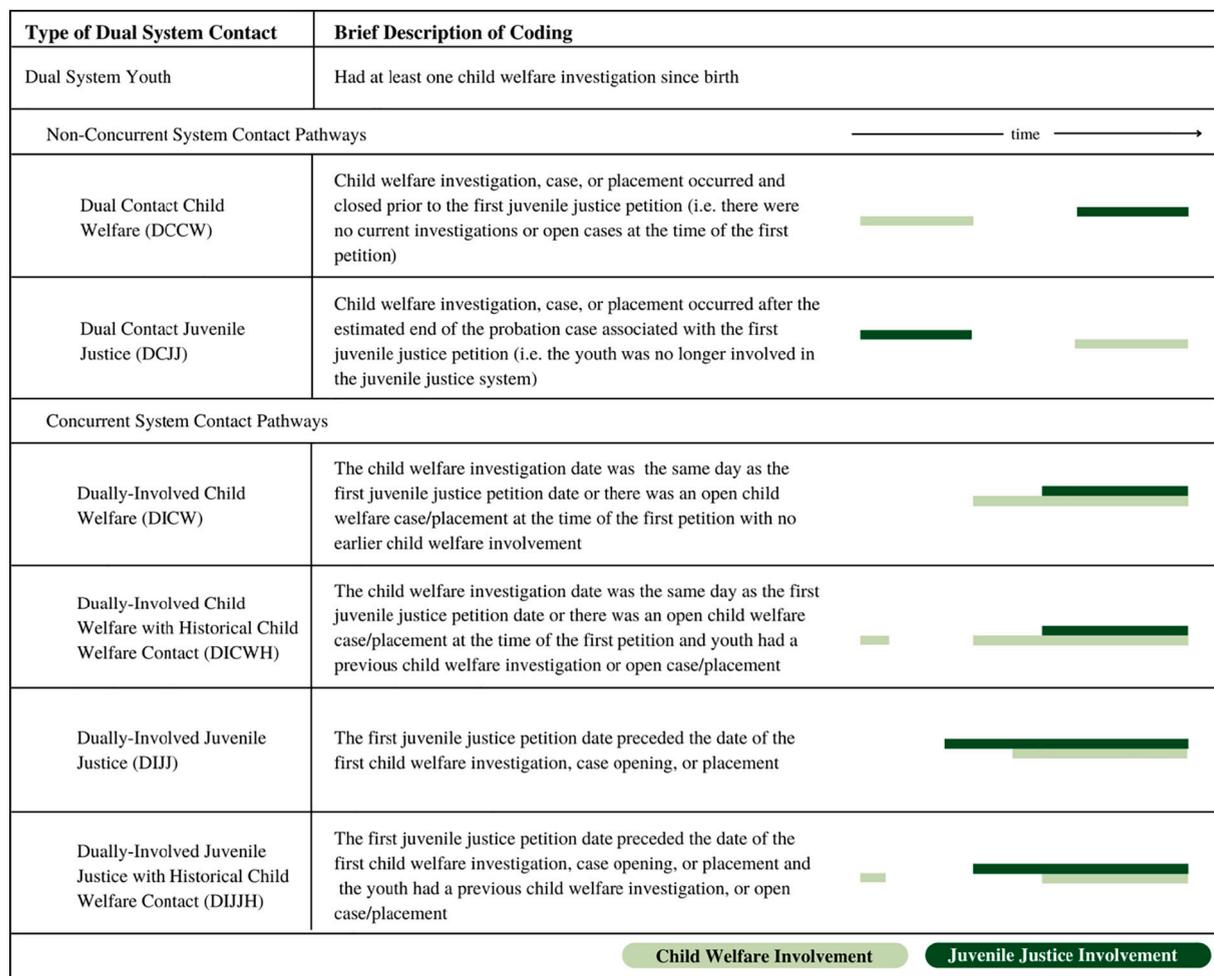


Fig. 1. Dual system youth pathways defined.

New York City. With regard to pathways, Black youth and females were more likely to fall into dually-involved child welfare first (DICW and DICWH) pathways.

Significant differences were also found across sites for system experiences and dual system pathways. Nonconcurrent youth (DCCW and DCJJ) had the fewest average number of referrals to the child welfare system, were the least likely to be placed in out-of-home care, and had the shortest average lengths of care in the child welfare system. Concurrent youth, particularly DICW and DICWH youth, had the highest average number of investigations, were the most likely groups to be placed in an out-of-home placement, and had the longest amount of time in care. Juvenile justice experiences also differed significantly between dual system youth and juvenile justice only youth, with dual system youth more likely to be detained, be charged with a violent crime, and have higher recidivism rates in Cook and Cuyahoga Counties. Detention and recidivism were not measured in New York City due to data limitations. Across pathways, DCCW youth were less likely to be detained and to recidivate than youth with concurrent involvement. Among concurrently involved youth, dually-involved juvenile justice first with historical child welfare contact (DLJH) youth had the highest recidivism rates in Cook and Cuyahoga Counties followed by dual-involved child welfare first pathways (DICW and DICWH). In sum, the study concluded that youth with less child welfare involvement appeared to have less intrusive contact with the juvenile justice system while youth with more child welfare involvement had more juvenile justice involvement and higher recidivism (Herz, Dierkhising, et al., 2019).

These findings align with earlier research. The overrepresentation of Black youth, for example, in dual system populations is greater than each system individually, and the proportion of females in dual system populations is higher compared to juvenile justice only populations (Dannerbeck-Janku et al., 2014; Halemba & Siegel, 2011; Herz, 2016; Ryan et al., 2011). Dual system youth consistently experience a high number of child welfare referrals, substantiated cases, and placements, and they have long histories in the child welfare system (Citizens for Juvenile Justice, 2015; Halemba & Siegel, 2011; Herz, 2016). When they enter the juvenile justice system, they are more likely to be charged with a violent offense, placed in pre-adjudication detention after arrest (Conger & Ross, 2001), and placed in a congregate care setting by the delinquency court (Ryan et al., 2008; Tam et al., 2016). They also have higher re-arrest rates than youth with no child welfare contact (Baglivio et al., 2015; Huang et al., 2012; Huang et al., 2015; Lee & Villagrana, 2015; Ryan et al., 2013).

Currently, there is scant research on pathways for comparison. Only two studies have directly tested the pathways offered outlined by the CJJR and RFK Children's Action Corps, and their results conflict. In 2013, Ryan, et al. compared recidivism rates across two dual system pathways using a sample of moderate to high-risk offenders identified in the state of Washington between 2004 and 2007 ($N = 19,833$) and found that youth with concurrent system involvement had higher recidivism than youth with nonconcurrent involvement. Baglivio et al. (2015) built upon Ryan et al.'s (2013) study using a sample of juvenile justice-involved youth exiting from residential treatment center (RTC) placement between January 2010 and June 2013 ($N = 12,955$) and found that youth with nonconcurrent system contact had slightly higher recidivism rates than those with concurrent contact. The difference in findings is perplexing; however, it may be a function of using different samples and different timeframes to define concurrent and nonconcurrent involvement. Ryan et al.'s sample, for example, included moderate and high-risk offenders generally and looked at system involvement across their life span whereas Baglivio et al.'s sample included youth exiting from juvenile justice residential treatment placements and child welfare contact was limited to the past five years including their time in placement.

Pathways were the focus of another set of studies but in a slightly different way. Rather than looking at recidivism, these studies were interested in examining the relationship between child welfare experiences and differing levels of juvenile justice involvement. Two studies by Kolivoski et al. (2014) and Kolivoski et al. (2017) analyzed a subsample of 794 youth who had at least one child welfare placement drawn from birth cohort of children involved in the child welfare system in Allegheny, Pennsylvania between 1985 and 1994, and Malvaso et al. (2018) compared 2045 youth between 10 and 18 years old under youth justice supervision in secure custody or detention in one Australian jurisdiction between 1995 and 2012. Although the pathway definitions differed across these three studies, the conclusion was the same: deeper involvement in the child welfare system was correlated to deeper involvement in the juvenile justice system.

The importance of more accurately understanding dual system youth, their characteristics, and the ways in which they enter both systems is increasingly recognized in research and among policymakers and practitioners. Without clear definitions and methods to guide this research, however, findings are tenuous and have limited usefulness in policy discussions to improve the well-being of youth in child welfare and juvenile justice systems. The purpose of this study is to replicate the DSYS methodology and definitions to determine whether the patterns found in Cook County, Cuyahoga County, and New York City emerge in other geographical areas. To that end, the following hypotheses are tested:

Hypothesis 1. The majority of youth with a first juvenile justice petition will have dual system contact.

Hypothesis 2. Dual system rates will vary across pathways and nonconcurrent involvement pathways will occur more often than concurrent involvement pathways.

Hypothesis 3. Youth characteristics and system experiences will significantly differ between dual system and juvenile justice only youth.

Hypothesis 4. Youth characteristics and system experiences will significantly differ across dual system pathways.

2. Data and methods

Using data from the Los Angeles Probation Department, all youth born in or after 1998 with a first juvenile justice petition between

January 2014 and December 2016 were matched to child welfare records, provided by the California Department of Social Services. Youth born on/after 1998 were examined because child welfare records were unavailable prior to that year and constructing the dataset in this way allowed for a lifetime examination of child welfare involvement. All youth identified for the first juvenile justice petition cohort were between the ages of 10 and 17 at the time of their arrest. A juvenile justice petition in Los Angeles County represents a district attorney's decision to formally charge a youth in delinquency court for criminal charges. The only methodological difference between these studies was the timeframe for identifying first juvenile justice petitions. The current study uses a slightly shorter timeframe and more recent data compared to the DSYS study (i.e., 2014–2016 vs. 2010–2014).

Census records show Los Angeles County is the largest county in the United States, with a population of ten million (U.S. Census Bureau, 2019). The demographics show 26.1% of the population is White, 48.6% is Hispanic, 9.0% is Black, and 15.4% is Asian-American. Of all residents in Los Angeles County 5.8% are under 5 years old and 21.4% are under the age of 18. Approximately 13.4% of the population lives in poverty. Los Angeles County is the largest jurisdiction studied and has similar age stratification and poverty rates when compared to Cook County, Cuyahoga County, and New York City but differs in race/ethnicity. Los Angeles County's Hispanic population is much larger, and the Black population is much smaller in comparison to the other three jurisdictions (e.g. in Cook County a quarter of the population is Black and a quarter is Hispanic; Herz, Dierkhising, et al., 2019).

Data from both agencies were encrypted, securely transmitted, and integrated into the Children Data Network's (CDN) non-networked, restricted workstation exclusively maintained for data linkage work. CDN is a university–agency data and research collaborative focused on the linkage and analysis of administrative records. Permission for CDN to use Los Angeles County Probation records was given through a research court order from the Los Angeles Superior Court Juvenile Division and by leadership at the Probation Department, and use of records from the California Department of Social Services fell within existing state data-use agreements and a state institutional review board protocol approval (CPHS 13-10-1366). Use of all data was approved by the University of Southern California institutional review board (UP-13-00455). Once all first juvenile justice petitions were identified in the Probation data, they were probabilistically linked to state child welfare data between January 1998 through December 2017 using ChoiceMaker, an open source machine learning software with customized algorithms for probabilistically matching records (Borthwick et al., 2003). The match probabilities (scores based on the linkage variables to assess the likelihood that two records represent a mutual entity) were determined and the cutoff values were set a priori at 0.8. All pairs above the threshold were considered matches and all pairs below the threshold were considered nonmatches. Identifiable information was necessary to carry out the objectives of this project because an encrypted common key to connect these records was not available. Identifiable data elements were used for linkage purposes, and de-identified/restricted research datasets were created for analysis once the linkage was complete.

Youth were identified as dual system youth if they had at least one child welfare investigation since birth. These procedures yielded a final cohort of 6877 youth with a first juvenile justice petition between 2014 and 2016. Of this cohort, 4410 (64.1%) were identified as “dual system youth,” while the remaining 2467 youth (35.9%) were categorized as “juvenile justice only.”

2.1. Measures

The current study used the same measures and coding rules as the DSYS. A description of all measures is provided below.

2.1.1. Demographics

Gender was categorized as male or female and race/ethnicity was divided into the following categories: Black, Hispanic, White, and Other. “Other” race/ethnicity included smaller groups (i.e., Asian Pacific Islander and American Indian), individuals who identified as multiple race/ethnicities, and missing data. All categories are presented in the tables, but due to the small number of youth who fell into the “Other” category, this category is not discussed in the Results section.

2.1.2. Child welfare involvement

Several child welfare measures were included for all dual system youth through 2017. Continuous variables captured information about the nature of investigations, including age at first and last investigation, the average number of investigations, and the average length of time spent in the care of child welfare—consecutively or non-consecutively—during the study timeframe. Dichotomous variables distinguished whether youth ever had at least one out-of-home placement, and continuous variables captured the average number of out-of-home placements.

2.1.3. Juvenile justice involvement

Age at first juvenile justice petition was measured using a continuous variable, and pre-adjudication detention was a dichotomous variable (yes/no). The most serious charges were coded into four categories: violent offenses (e.g. battery, assault), property offenses (e.g., vehicle theft, burglary), drug offenses (e.g., sale/possession of a controlled substance), and other offenses (e.g., obstructing justice, carrying a loaded firearm). Consistent with the DSYS, this study defined juvenile justice recidivism as a new arrest within one year of an estimated disposition date. Since 44.8% of disposition dates for cohort youth were missing in Probation's data, an estimated disposition date was generated by adding three months to each youth's first petition date. The one-year recidivism rate was then based on any new arrests occurring within one year after this generated date (i.e., it captured any recidivism 15 months after the first petition date). Recidivism is dependent upon time to recidivate—in other words, rearrests are only possible if a youth is in the community and not in a correctional placement. Unfortunately, time to recidivate (i.e., time in the community) could not be measured because Probation data did not provide start and end dates for correctional placements. As a result, the one-year recidivism rate may be biased in both this study and the DSYS in two ways: (1) it may undercount recidivism because dual system youth may have spent more time in

correctional placements than first juvenile justice petition only youth; and (2) it may similarly impact recidivism rates for pathways with youth more likely to spend time in a correctional placement. Since few youth were placed in correctional placements, the error in the measure was assumed to be minimal.

3. Analysis

Incidence rates for dual system youth and dual system youth pathways were computed and compared in the same way as the DSYS with one exception (Herz, Dierkhising, et al., 2019). In addition to comparing dual system youth and juvenile justice only youth, the DSYS study also compared dual system youth to a child welfare only cohort. The present study was restricted to juvenile justice only youth. Although Chi-square tests were used to examine differences for all categorical variables; *t*-tests were used to assess differences for all continuous variables. Statistical significance was set at $p < .05$. To determine whether results differed across pathways, dual system pathways were analyzed in pairs (e.g., [a]–[b]; [a]–[c]; [a]–[d]; and so on). All data cleaning and statistical analyses were conducted in Stata 16.1.

4. Results

Table 1 summarizes findings for dual system contact and across dual system youth pathways. Approximately two-thirds (64.1%, $N = 4410$) of all first juvenile justice petition youth had at least one child welfare investigation between 1998 and 2017 and were classified as dual system youth. This finding is consistent with Hypothesis 1, which proposed that the majority of first juvenile justice petition youth would be dual system. This rate is also nearly identical to those produced for Cuyahoga County (68.5%) and New York City (70.3%). The majority of dual system youth also had contact with both systems at different times, supporting Hypothesis 2. Just over half (52.2%) of all dual system youth fell into the dual contact child welfare first pathway (DCCW), indicating that noncurrent involvement is more common than concurrent involvement. The remaining portion of dual system youth (47.8%) in Los Angeles County interacted with both systems concurrently, but the order of system contact was complex. Most of these youth followed the dually-involved juvenile justice system first pathway, but they had entered the child welfare system at an earlier point in their lives (DIJJH—27.4%). Dually-involved child welfare first youth represented 14.2% of all dual system contact when youth without (DICW—9.2%) and with historical child welfare contact (DICWH—5.0%) were combined. These findings differed slightly from those in the DSYS study in which dually-involved child welfare first pathways (DICW and DICWH) were most prevalent followed by DIJJH youth. In Cook County, for example, similar rates were reported for DICW (9.5%) and DICWH (8.9%) pathways, but in Cuyahoga and New York City, nearly a quarter of dually-involved youth were DICW youth (20.1% and 26.5%) and less than 10% were DICWH youth.

Regardless of the type of contact, the results for timing were clear and consistent across all sites: Nearly all dual system youth were involved with the child welfare system before they entered the juvenile justice system. Thus, the least common pathways were youth who entered the juvenile justice system before receiving a child welfare investigation (DCJJ and DIJJ). Five percent or less of dual system youth in Los Angeles and the DSYS sites fell into these categories. Due to the low number of youth ($n = 30$), results for the DCJJ pathway are shown but not presented or discussed further in the Results section.

4.1. Youth characteristics and system experiences among dual system youth

4.1.1. Gender and race

As shown in Table 2, the majority of dual system youth in the study were male (78.1%) and Hispanic (61.5%) and over a quarter were Black (27.7%). Compared to census records, both males and Black youth were overrepresented in the juvenile justice cohort. Table 2 further shows that the risk of dual system involvement was heightened for females and Black youth when compared to their juvenile justice only counterparts, lending support to Hypothesis 3. One-quarter (25.9%) of dual system youth, for example, were female compared with 14.7% of juvenile justice only youth, and 31.2% of dual system youth were Black compared with 21.6% of juvenile justice only youth. This finding is consistent with the patterns found across all DSYS sites in which the proportion of females

Table 1
The number and percentage of dual system youth overall and across pathways.

	N	%
Juvenile justice (JJ) petition cohort youth	N = 6877	
JJ only youth	2467	35.9
Dual system youth	4410	64.1
Distribution of dual system youth by pathway	N = 4410	
Dual contact		
Child welfare pathway (DCCW)	2303	52.2
Juvenile justice pathway (DCJJ)	30	0.7
Dually-involved		
Child welfare pathway/no historical contact (DICW)	407	9.2
Child welfare pathway + historical contact (DICWH)	220	5.0
Juvenile justice pathway/no historical contact (DIJJ)	242	5.5
Juvenile justice pathway + historical contact (DIJJH)	1208	27.4

Table 2

A summary of youth characteristics and system experiences across dual system youth and juvenile justice only youth.

	JJ only youth N = 2467	Dual system youth N = 4410
Total		
Race/ethnicity		
White	226 (9.2%)	308 (7.0%)**
Black	532 (21.6%)	1375 (31.2%***)
Hispanic	1589 (64.4%)	2637 (59.8%***)
Other	120 (4.9%)	90 (2.0%***)
Sex		
Female	363 (14.7%)	1142 (25.9%***)
Male	2104 (85.3%)	3268 (74.1%***)
Child welfare characteristics		
Avg. age at first CPS investigation (in years)	n/a	6.7*
Avg. age at last CPS investigation (in years)	n/a	13.0
Avg. number of investigations (per child)	n/a	5.9
Ever placed in CPS placement (%)	n/a	33.0
Average number of placements	n/a	3.6
Cumulative time with an open case (in months)	n/a	31.6
Juvenile justice characteristics		
Avg. age at first JJ petition (in years)	15.3	15.0***
Detained prior to adjudication	845 (32.3%)	1900 (43.1%***)
Most serious offense type		
Violent	1071 (43.3%)	2442 (55.5%***)
Property	637 (25.8%)	985 (22.4)**
Drug	246 (10.0%)	260 (5.9)***
Other	519 (21.0%)	717 (16.3)***
Recidivism	461 (18.6%)	1136 (25.8%***)

* $p < .05$.** $p < .01$.*** $p < .001$.

and the overrepresentation of Black youth was greater among dual system youth than juvenile justice only youth.

4.1.2. Child welfare involvement

Table 2 also displays the results for child welfare involvement for dual system youth. According to these findings, dual system youth received their first child welfare investigation at an average age of 6.7 years old and their last one at an average age of 13.0 years old, and they had an average of 5.9 investigations during this time. One-third (33.0%) of dual system youth had at least one case opened for an out-of-home placement. They were placed, on average, 3.6 times, and they spent an average of 31.6 months (or 2.6 years) under the care of the child welfare system. These findings closely mirror those in the DSYS (Herz, Dierkhising, et al., 2019). Dual system youth in DSYS sites had their first investigation, on average, between 5.6 and 8.3 years old and their last investigation, on average, between 9.9 and 11.6. Their average number of investigations in all sites was three. Between 22% and 31% of dual system youth in the DSYS had at least one placement, with an average of four to six placements. And they spent approximately three years (on average) in the care of the child welfare system.

4.1.3. Juvenile justice involvement

A comparison of juvenile justice experiences in Table 2 provided additional support for Hypothesis 3. Dual system youth were more likely to be detained following their arrest than all juvenile justice only youth (43.1% compared to 32.3%), and they were more likely to be charged with a violent offense (55.5%) compared to all juvenile justice only youth (43.3%). Recidivism (i.e., a new arrest) at one-year after disposition was higher for dual system youth (25.8%) than for juvenile justice only youth (18.6%). These findings were similar to those for the DSYS sites: Dual system youth in DSYS sites were younger at first petition, and they were more likely to be detained, and charged with a violent offense in two of the three OJJDP sites. Recidivism rates were also higher for dual system youth in these counties (33.7% and 37.4%) compared to juvenile justice only youth (26.6% and 24.1%).

4.2. Youth characteristics and system experiences across dual system youth pathways

4.2.1. Gender and race

Consistent with Hypothesis 4, the distribution of gender and race/ethnicity in Table 3 significantly differed across pathways. Females with dual system contact were more likely to fall into the dually-involved pathways, with the greatest percentage of females in the child welfare first groups (DICW, DICWH, and DIJH). Across race/ethnicity, Hispanic youth were most likely to be in the DCCW pathway (62.1%) whereas Black youth were most likely to be in the DICWH pathway (42.3%). No pathway differences were found for White youth.

Overall, females in the prior study at the DSYS sites were more to be dually-involved child welfare first youth (DICW, DICWH, and DIJH) than dual contact youth, but the rates and patterns varied across sites for race/ethnicity. In Cook County, Black youth were

Table 3
Gender and race/ethnicity across dual system pathways in Los Angeles County.

	Dual system pathways					
	(a) Dual contact: CW pathway	(b) Dual contact: JJ pathway	(c) Dually involved: CW pathway	(d) Dually involved: CW pathway + historical CW case	(e) Dually involved: JJ pathway	(f) Dually involved: JJ pathway + historical CW case
Total	N = 2303	N = 30	N = 407	N = 220	N = 242	N = 1208
Sex						
Female	418 (18.2%) ^{cdf}	cd	181 (44.5%) ^{abef}	86 (39.1%) ^{abe}	56 (23.1%) ^{cdf}	396 (32.8%) ^{ace}
Male	1885 (81.9%) ^{cdf}	25 (83.3%) ^{cd}	226 (55.5%) ^{abef}	134 (60.9%) ^{abe}	186 (76.9%) ^{cdf}	812 (67.2%) ^{ace}
Race/ ethnicity						
White	160 (7.0%)		32 (7.9%)	16 (7.3%)	16 (6.6%)	82 (6.8%)
Black	666 (28.9%) ^{cd}	13 (43.3%)	147 (36.1%) ^{ade}	107 (48.6%) ^{acef}	66 (27.3%) ^{cd}	376 (31.1%) ^d
Hispanic	1429 (62.1%) ^{cd}	15 (50.0%)	226 (55.5%) ^{ad}	93 (42.3%) ^{acef}	147 (60.7%) ^d	727 (60.2%) ^d
Other	48 (2.1%) ^{ce}		aef	e	13 (5.4%) ^{acdf}	23 (1.9%) ^{ec}

Note: Data are left blank if cell size is too small to report per data sharing agreements. The superscripted letters a–f denote significant differences ($p < .05$) between the pathways.

more likely to be in dually-involved child welfare first pathways (DICW and DICWH); in Cuyahoga County, they were equally likely to be in the DCCW, DICWH and DIJH pathways; and in New York City, they were most likely to be in the DCCW pathway.

4.2.2. Child welfare involvement

The differences in child welfare experiences across pathways shown in Table 4 also align with Hypothesis 4, indicating that dual system youth with non-concurrent contact (DCCW) had more limited child welfare involvement compared to youth with concurrent contact (DICW, DICWH, DIJ, and DIJH). DICWH youth came in contact with child welfare for the longest span of time compared to all other pathways, starting with their first investigation at 3.2 years old (on average) and continuing until their last child welfare investigation at 15.2 years old (on average). These youth also had the highest average number of investigations (14.6 on average) compared to other pathways. Both DICW and DIJH had the second longest span of contact with child welfare, starting at approximately 6 years old (6.3 and 6.1 years old on average) and ending with their last investigation at 15.0 years old (on average), but DICW youth had a higher number of investigations (10.0 on average) than DIJH youth (7.8 on average). DIJ and DCCW youth had the lowest average number of investigations (3.4 and 3.6, respectively) and the shortest durations of child welfare contact compared to other pathways. Contact for DIJ youth was the shortest, starting with their first investigation at 13.2 years old (on average) and ending at 15.7 years old (on average). The length of time for child welfare contact for DCCW youth was longer than DIJ youth but shorter than other pathways. Their first investigation occurred at 6.6 years old (on average) and ended at 11.0 years old (on average).

Nearly all DICW youth (88.0%) and DICWH youth (91.4%) had at least one out-of-home placement case compared to one-third or less of DIJH youth (35.1%), DIJ youth (20.3%), and DCCW youth (18.4%). DICW and DICWH youth also experienced slightly more than five placements on average, which was twice as many placements compared to youth in other pathways. Overall, DICWH and DIJH youth spent the longest amount of time in the care of child welfare (32.6 months and 61.7 months on average) and DCCW youth spent the least (25.4 months on average).

Pathway comparisons yielded a number of similarities across studies. DICW and DICWH youth were the most likely groups to be placed in an out-of-home placement and they were also more likely to spend the longest amount of time in care compared to other pathways. The only difference between studies was for DIJH youth. In the DSYS, DIJH youth shared similar characteristics and experiences with DICWH youth, but in Los Angeles County, child welfare experiences for DIJH youth aligned more with DIJ and DCCW experiences.

4.2.3. Juvenile justice involvement

Table 5 displays pathway comparisons for juvenile justice experiences. In Los Angeles County, DCCW youth were older than other pathway youth at the time of their petition (15.3 years old on average), and they were also the least likely pathway to be detained (37.8%) or to be charged with a violent offense (49.0%). Approximately half of youth in all other pathways were detained and over 60% were charged with violent offenses. With regard to new arrests, DICWH and DIJH had the highest recidivism rates at one year after disposition. At one year after disposition, one-third or slightly less of these youth had at least one new arrest (33.2% for DICWH and 29.1% for DIJH) compared to slightly more than 20% for all other pathways and only 18.6% for juvenile justice only youth.

These findings further support Hypothesis 4 and mirror the patterns reported in the DSYS. According to Herz, Dierkhising, et al. (2019), DCCW youth were older and were less likely to be detained after an arrest compared to other pathways in two of the DSYS sites (Cook and Cuyahoga Counties). Recidivism rates were highest for DIJH (35.0% and 42.9%) youth in Cook and Cuyahoga County followed by dually-involved child welfare first pathways (DICW and DICWH). In contrast to Los Angeles County, however, no differences were found for offense charge.

5. Discussion

This study reconceptualizes how dual system involvement is defined, understood, and measured. It broadens our understanding of the maltreatment-delinquency relationship from a narrow definition of concurrent dual system contact to identifying young people with dual system contact across their lifespans. Hypotheses based on the patterns reported in the DSYS study were tested using Los Angeles County data and revealed substantial alignment across four metropolitan areas for the incidence of dual system contact and dual system pathways and for the characteristics and experiences of dual system youth. These insights significantly contribute to practice and policy discussions focused on disrupting trajectories for dual system involvement.

Although previous research demonstrates that many young people cross between the child welfare and juvenile justice systems, methodological weaknesses prevent identifying reliable and valid estimates of dual system youth from these studies. Replication of the DSYS study (Herz, Dierkhising, et al., 2019) provided more confidence in the dual system rates and patterns with more consistent and stronger methodology. Specifically, nearly half or more of first juvenile justice petition youth were dual system youth; most dual system youth had nonconcurrent contact with both systems, and nearly all dual system youth were involved with the child welfare system before they entered the juvenile justice system. A critical contribution of this study and the DSYS (Herz, Dierkhising, et al., 2019) is the recognition that dual system involvement is a common characteristic for youth who enter delinquency court.

Nearly all (93.8%) dual system youth in Los Angeles County and DSYS sites came into contact with child welfare system before their first juvenile justice petition, and the majority of these dual system youth were not involved with both systems simultaneously—in other words, most dual system youth enter the child welfare system, have their child welfare cases end, and at a later date, enter the juvenile justice system. The implication of this finding is important on at least two fronts. First, most dual system youth do not have open child welfare cases at the time of their juvenile justice involvement, and as a result, their historical (and potentially persistent) experience with maltreatment may not be considered during juvenile justice decision-making (CJJR, 2015) or recognized and addressed effectively in case planning. Secondly, the potential for preventing juvenile justice involvement is substantial when this connection is recognized and when public and private child and family services work together to address risk factors as early in the process as possible (Vidal et al., 2019).

Similar to the DSYS, the Los Angeles County findings documented disparities across gender and race/ethnicity between dual system youth and juvenile justice only youth. Dual system youth were more likely to be female or Black than juvenile justice only youth, and dual system youth had deeper involvement in the juvenile justice system than their juvenile justice counterparts. When compared to census records, Black youth were overrepresented in Los Angeles County in the juvenile justice only population and the level of overrepresentation increased for dual system youth (U.S. Census Bureau, 2019). These findings align with literature that documents disproportional child welfare involvement (Huang et al., 2012; Putnam-Hornstein et al., 2013; Kim et al., 2017), deeper juvenile justice system involvement (Bishop et al., 2010), and increased risk of dual (and poly) system involvement for Black youth (Halemba et al., 2004; Halemba & Siegel, 2011; Ryan et al., 2013; Vidal et al., 2019). Individual and institutional racism contribute to the overrepresentation of racial and ethnic minorities in juvenile justice in the form of the higher rates of arrest, detention, placement in correctional facilities, and longer sentences (Epstein et al., 2019; Knott & Donovan, 2010; Rodriguez, 2010). The results of this study and the DSYS indicate that these differences may be magnified for dual system youth.

Finally, dual system involvement varied by type and timing and across six pathways, and pathway comparisons across

Table 4
Child welfare (CW) system experiences across dual system pathways in Los Angeles County.

	Dual system pathways					
	(a) Dual contact CW pathway (DCCW)	(b) Dual contact: JJ pathway (DCJJ)	(c) Dually involved CW pathway (DICW)	(d) Dually involved CW pathway + historical CW (DICWH)	(e) Dually involved JJ pathway (DIJJ)	(f) Dually involved: JJ pathway + historical CW (DIJJH)
Total	N = 2303	N = 30	N = 407	N = 220	N = 242	N = 1208
Avg. Age at 1st CW investigation (in years)	6.6 ^{bdef}	16.0 ^{acdef}	6.3 ^{bde}	3.2 ^{abcef}	13.2 ^{abcdf}	6.1 ^{abde}
Avg. Age at last CW investigation (in years)	11.0 ^{bdef}	16.1 ^{acdf}	15.0 ^{abe}	15.2 ^{abe}	15.7 ^{acdf}	15.0 ^{abe}
Average number of investigations (per child)	3.6 ^{bcd}	1.3 ^{acdef}	10.0 ^{abdef}	14.6 ^{abcef}	3.4 ^{bcd}	7.8 ^{abcde}
Ever in CW placement (%)	18.4 ^{bcd}	acdef	88.0 ^{abef}	91.4 ^{abef}	20.3 ^{bcd}	35.1 ^{abcde}
Average number of placements	2.3 ^{cd}		5.6 ^{aef}	5.3 ^{aef}	2.9 ^{cd}	2.5 ^{acd}
Cumulative time with an open case (in months)	25.4 ^{def}		29.0 ^d	61.7 ^{acdf}	12.1 ^{adf}	32.6 ^{ade}

Note: Data are left blank if cell size is too small to report per data sharing agreements. The superscripted letters a–f denote significant differences ($p < .05$) between the pathways.

Table 5
Juvenile justice (JJ) experiences across dual system pathways in Los Angeles County.

	Dual system pathways					
	(a) Dual contact CW pathway (DCCW)	(b) Dual contact: JJ pathway (DCJJ)	(c) Dually involved CW pathway (DICW)	(d) Dually involved CW pathway + historical CW (DICWH)	(e) Dually involved JJ pathway (DIJJ)	(f) Dually involved: JJ pathway + historical CW (DIJJH)
Total	N = 2303	N = 30	N = 407	N = 220	N = 242	N = 1208
Avg. Age at first petition (in years)	15.3 ^{bcd}	14.1 ^{acdef}	14.8 ^{ab}	14.9 ^{abef}	14.7 ^{abd}	14.7 ^{abd}
Detained prior to adjudication	871 (37.8%) ^{cdef}	10 (33.3%)	190 (46.7%) ^a	109 (49.6%) ^a	111 (45.9%) ^a	609 (50.4%) ^a
Most serious offense type						
Violent	1124 (48.9%) ^{cdef}	16 (51.6%)	257 (64.6%) ^a	155 (68.0%) ^a	147 (61.5%) ^a	743 (61.5%) ^a
Property	592 (25.8%) ^{cdef}		73 (18.3%) ^a	33 (14.5%) ^a	42 (17.6%) ^a	238 (19.7%) ^a
Drug	158 (6.9%) ^{df}		23 (5.8%) ^d	ac	12 (5.0%)	61 (5.1%) ^a
Other	425 (18.5%) ^{cf}		45 (11.3%) ^a	35 (15.4%)	38 (15.9%)	167 (13.8%) ^a
Recidivism	537 (23.3%) ^{df}		109 (26.8%)	73 (33.2%) ^{ae}	57 (23.6%) ^d	352 (29.1%) ^a

Note: Data are left blank if cell size is too small to report per data sharing agreements. The superscripted letters a–f denote significant differences ($p < .05$) between the pathways.

demographics, child welfare experiences, and juvenile justice experiences revealed significant patterns. Specifically, juvenile justice experiences and outcomes in this study, as well as the DSYS, were aligned with differences in child welfare involvement. Youth with less child welfare involvement also had less penetration into the juvenile justice system. This group was more likely to include DCCW youth and to be Hispanic and male. Youth with the most extensive child welfare involvement, on the other hand, had the most serious juvenile justice outcomes. This group was more likely to include youth with concurrent system involvement (DICW, DICWH, and DIJJH), to be Black, and to have higher rates of females compared to juvenile justice only youth and dual contact pathway youth. The consistencies found across groups of dually-involved youth suggests the importance of pathways and may also point to the possibility of a more parsimonious approach to assessing the nature and timing of system involvement. An initial exploration of this issue in the DSYS, for example, produced four clusters or pathways using sequence analysis: limited and late child welfare involvement; moderate child welfare involvement; long duration in child welfare, and long duration in child welfare out-of-home placements (Mader et al., 2019). Further consideration and investigation of developmental pathways is necessary to identify specific ways to interrupt dual system contact and better serve youth as early as possible (Baidawi & Sheehan, 2019; Vidal et al., 2019).

6. Study limitations

This study used rich sources of data from a large and diverse county, but it relied on administrative data, which inherently presents several limitations. First, administrative data are subject to human error and missing data, both of which impact the accuracy of results. Missing data was particularly problematic in the probation data for court disposition hearing dates, placement start and end dates, and case termination dates—all of which limited the ability to precisely track outcomes for youth in the study. Second, the first juvenile justice petition cohort was limited to youth born on or after 1998 because California child welfare records were not automated prior to this date. By censoring the sample in this way, 22.1% of first petition youth between 2014 and 2016 were excluded from analysis. Finally, the data were limited to system processing decisions and did not contain additional information about protective factors the youth may have such as family history, behavioral health needs, or the services youth received from either the system. It would be especially meaningful if system linkages could include educational data.

Future research should address at least three outstanding issues. First, while these data support the accuracy of estimates in other urban areas, replication in less populated and rural areas is still necessary. Second, future research should investigate whether theoretical pathways or empirically derived pathways are the most efficient way to identify trajectories leading to dual system contact. The most parsimonious array of pathways based on the timing and levels of child welfare involvement can then be used to further explore long-term outcomes across groups, lead to the identification of protective factors, and develop recommendations for effective, preventative practices. Finally, both incidence rates and pathways should be explored prospectively using a birth cohort of youth involved in the child welfare system. This type of study affords a unique opportunity to capture system pathways as they unfold over the life course. A prospective study would allow for a path analysis that could provide information about the direct or indirect effects between child welfare experiences and later juvenile justice outcomes.

7. Conclusion

The majority of youth adjudicated in the juvenile justice system experience some level of contact with the child welfare system. For most, their contact with the child welfare system occurs before they enter the juvenile justice system, presenting a significant opportunity for prevention and reduction of delinquency. Consistency in the results between Los Angeles County and sites in the Dual

System Youth Design Study demonstrates that geographic variations in dual system involvement may be less significant than once assumed, giving support to a stable range of dual system rates to other metropolitan areas. Collectively, these results hold the potential to establish reliable estimates for how often youth are involved with both systems and how dual system contact occurs.

Findings from this study and the DSYS point to the need for communities and systems to collaboratively implement a delinquency prevention continuum of care that begins in the community and continues throughout child welfare and juvenile justice system involvement. Prevention of dual system contact should be anchored within a full array community-based supports for families (primary prevention), services to mitigate and address risk (secondary prevention) and continuing services for families involved with the child welfare and juvenile justice systems (tertiary prevention). Using a delinquency prevention continuum recognizes the developmental nature of dual system contact and creates multiple opportunities to prevent delinquency from happening and/or reduces the likelihood of deep system involvement for those who interact with the juvenile justice system (e.g., the use of diversion). Incorporating a delinquency prevention continuum into child welfare and juvenile justice practices also connects siloed efforts currently focused on the backend of systems with earlier opportunities to intervene, and it fosters the use of strategic and seamless collaboration across systems and community partners. Most importantly, reframing system responses for youth who cross into delinquency calls attention to the possibilities for juvenile justice systems to embrace a rehabilitative and restorative role over traditionally punitive ones. Investing in children, youth and families in this way holds the greatest potential to disrupt a pipeline that sends youth into the juvenile justice and adult criminal justice systems and destabilizes families and communities.

Declaration of competing interest

None.

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