Criminal Justice Coordinating Council

A Study of Factors that Affect the Likelihood of Juvenile Justice System Involvement

Report

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About the Criminal Justice Coordinating Council

As an independent agency, the Criminal Justice Coordinating Council (CJCC) for the District of Columbia is dedicated to continually improving the administration of criminal justice in the District. The mission of CJCC is to serve as the District of Columbia's forum for District and federal members to identify cross-cutting local criminal and juvenile justice system issues and achieve coordinated solutions for the criminal and juvenile justice systems.

CJCC is the home of the DC Statistical Analysis Center (SAC). The mission of the SAC is to apply the highest level of scientific rigor and objectivity in the study of criminal justice policies, programs and practices, and to identify activities that improve the administration of justice. The SAC aims to produce empirical research and analysis that informs stakeholders and enhances policy decision-making in the District.

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I. Executive Summary

While intended to rehabilitate children, juvenile justice system involvement is well-established to have long-term negative effects on youth.[1] There are, therefore, strong incentives to target resources to serve the needs of children and their families prior to the occurrence of delinquent behavior. Before determining where such resources should be targeted, it is important to understand (1) which risk factors contribute the most to youth delinquency and (2) which protective factors reduce the likelihood of delinquent behavior among the highest-risk youth.

The Council of the District of Columbia mandated the Criminal Justice Coordinating Council submit a report to the Mayor and Council on the root causes of youth crime and prevalence of adverse childhood experiences that incorporates results from a voluntary survey of youth with juvenile justice system involvement on their perspectives. The CYJAA specified that the report should examine factors "such as housing instability, child abuse, family instability, substance abuse, mental illness, family criminal involvement, and other factors deemed relevant by the CJCC" (D.C. Law 21-23).

In accordance with this mandate, CJCC obtained administrative data from multiple sectors on a representative sample of youth enrolled in public schools in the District during the 2016 – 2017 school year and identified youth with justice system involvement, which was defined as being arrested or petitioned/charged the following year. During the fall of 2018, the CJCC conducted surveys and focus groups with DYRS-committed and DOC-incarcerated youth under the age of 21, and, during the spring and summer of 2018, conducted interviews with youth service providers.

Effective April 2, 2022 D.C. Council amended the law to read, "By October 1, 2022, the CJCC shall submit a report to the Mayor and the Council that analyzes protective factors that reduce the risk of District youth entering the juvenile and criminal justice systems."[2] To that end, this iteration of the report contains both a replication of prior empirical research as well as discussion surrounding protective factors and how they are currently implemented in the District or how they could be implemented.

The first Study of the Root Causes of Juvenile Justice System Involvement report was issued in November 2020 and addressed the following questions:

1. How do youth with juvenile justice system involvement differ from youth who do not become involved in the juvenile justice system?
2. What factors affect the likelihood that youth become involved in the juvenile justice system?
3. How and why do these factors impact youth behavior?

This updated analysis seeks to answer the same questions through replicating the initial methodology with updated administrative data. We examined the differences between youth with justice system involvement and youth without justice system involvement with respect to demographics; access to economic resources; experiences with childhood maltreatment; educational experiences; mental, behavioral, and neurodevelopmental disorder diagnoses; and proximity to crime.

Next, we constructed a mathematical model to evaluate which factors had a statistically significant effect on the probability that a youth would become involved in the juvenile justice system. Using these

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[1] Azier and Doyle 2015; Gatti, Tremblay, and Vetaro 2009; Holman and Ziedenberg 2006; Lundman 1993.
[2] D.C. L24-0105

probabilities, we calculated a risk score and divided the sample cohort into four risk quartiles for further analysis. After examining the results of the empirical analysis, we investigate the literature surrounding protective factors as well as the District's implementation of some evidence-based programming and opportunities for future data collection and collaboration.

How do youth involved in the juvenile justice system differ from youth who are not involved in the juvenile justice system?

For the purposes of this study, involvement in the juvenile justice system is defined as being arrested or petitioned for an offense during the study period. A finding of delinquency is not a required component for involvement under our study parameters. We find that **Black youth** and **males** are overrepresented in the District of Columbia's juvenile justice system. Youth who become justice-system involved also have significantly higher rates of:

Economic Resources	Childhood Maltreatment	Educational Experiences
• Homelessness • TANF recipiency • Medicaid recipiency	• Removal to foster care • Reported abuse • Reported neglect	• Unexcused absences • Excused absences • Suspensions • Grade retention
Mental, Behavioral, & Developmental Disorders/IEP Eligibility		**Neighborhood Environment**
• Externalizing disorders • Comorbid disorders • Psychotic disorders • Specific developmental learning disorders • Specific developmental motor disorders • IEP eligibility		• Residence on gun violence "hot blocks"

What affects the likelihood that youth become involved in the juvenile justice system?

Using a multivariate logistic regression analysis and the administrative data we were provided, we identified the factors that have a statistically significant impact on the likelihood of juvenile justice system involvement.

We find that Black youth and males are at the highest risk of involvement. Youth who experience homelessness have a greater likelihood of juvenile justice system involvement, as do youth who experience abuse and neglect. Of the educational factors we evaluate, unexcused absences have a significant impact. Youth with externalizing and comorbid disorders are more likely to have contact with the juvenile justice system. Finally, youth who reside on a "hot block" with high gun violence incidence are more likely to become involved with the juvenile justice system.

The primary difference in findings between this report and the previous version is that suspensions are no longer a statistically significant factor for juvenile justice system involvement. This change may be

attributed to changes in District legislation that narrowed the circumstances in which students may be suspended.[3]

What protective factors and programs can reduce the likelihood that youth become involved in the juvenile justice system?

Protective factors can be grouped into five primary categories: individual protective factors, family factors, peer factors, and school and community factors. These can be further divided into demographic factors, economic indicators, behavioral and mental health issues, housing instability, exposure to violence, and educational factors. Many of the risk factors addressed in the empirical analysis have corollary protective factors or, by providing structured resources, have the potential to become protective factors.

Evidence-based programs and policies include mentoring programs, academic tutoring, after-school athletics, youth employment programs, anti-bullying campaigns, and economic supports. Developing data collection benchmarks and information sharing partnerships between the agencies and organizations currently providing many of these services will enable further District-specific program evaluation and empirical analysis.

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[3] D.C. Law 22-157

II. Study Overview

In 2020, the Criminal Justice Coordinating Council (CJCC) published the Study of the Root Causes of Juvenile Justice System Involvement, a report mandated by the Council of the District of Columbia that looked at the factors that affected the likelihood that youth would become involved in the juvenile justice system.[4] Subsequently, the Council mandated CJCC to conduct a follow-up study that would build on the initial report. The follow-up study would determine what factors prevent youth from becoming involved in the juvenile justice system and which of these factors are most effective.

This report replicates the earlier statistical analysis and incorporates an in-depth review of the literature relating to protective factors against juvenile justice system involvement, an overview of current policies and programs in the District of Columbia, and a discussion of how to improve data collection and collaboration moving forward.

In this analysis, we define juvenile justice system involvement as an individual being arrested or petitioned between June 2019 and July 2020. Importantly, youth involvement in the justice system does not, in this analysis, imply that a youth has been found guilty of any offense. To examine the differences between youth with juvenile justice system involvement and youth without juvenile justice system involvement, we drew a representative sample of youth enrolled in District of Columbia public schools (DCPS), public charter schools (PCS), or Department of Youth Rehabilitation (DYRS) students during the 2018 – 2019 school year. Using data provided by the Metropolitan Police Department (MPD) and District of Columbia Superior Court (DCSC), we identified which youth became system involved in the subsequent year. Since the observation period of this study overlaps with the beginning of the COVID-19 pandemic and public health emergency, there may be some variation relative to the prior study.

The Office of the State Superintendent (OSSE), Department of Human Services (DHS), Child and Family Services Agency (CFSA), Department of Health Care Finance (DHCF) and MPD provided additional data on the sampled youths' demographics, economic resources, housing stability, childhood maltreatment histories, educational experiences, mental disorder diagnoses, behavioral disorder diagnoses, neurodevelopmental diagnoses, and neighborhood environment. Appendix A contains a full description of the sample selection, data process, and variables.

The statistical model constructed to identify the factors that affect juvenile justice system involvement follows the same framework as in the earlier analysis. We constructed a statistical model to estimate the effect on the likelihood of juvenile justice system involvement using administrative data including gender, race, age, Temporary Assistance for Needy Families (TANF) recipiency, homelessness, Medicaid recipiency, removal from the home by CFSA, reported abuse, reported neglect, number of excused and unexcused absences, grade level retention, number of days excluded from school for disciplinary reasons, internalizing disorder diagnoses, externalizing disorder diagnoses, comorbid disorder diagnoses, psychotic disorder diagnoses, specific motor disorder diagnoses, specific learning disorder diagnoses, IEP eligibility, and residence on a gun-violence hot block. Appendix B contains details on the model specifications.

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[4] The 2020 report can be accessed here:
https://cjcc.dc.gov/sites/default/files/dc/sites/cjcc/CJCC%20Root%20Cause%20Analysis%20Report_Compressed.pdf

Report Layout

Section III presents descriptive statistics on how youth with juvenile justice system involvement and youth without juvenile justice system involvement differ from one another.

Section IV identifies the factors that were statistically significant with respect to juvenile justice system involvement and presents changes in average predictive probabilities associated with the likelihood of justice system involvement.

Section V summarizes the findings from a literature review regarding the protective/pro-social factors that reduce the likelihood of juvenile justice system involvement and identifies existing programs in the District of Columbia as well as opportunities for future data collection and collaboration. The CJCC initially planned to incorporate administrative data from the Department of Parks and Recreation, Department of Employment Services, and the Department of Human Services regarding the extent to which youth in the study sample participated in prosocial programs offered by these agencies for inclusion in the statistical model. However, due to privacy concerns identified by these agencies, the data were not made available for this study.

Section VI summarizes the empirical results and discusses how current and future policies and programs could increase protective factors and reduce the likelihood of juvenile justice system involvement.

Definitions

Below is a list of factors included in the statistical analysis and their definitions. More information on the sources and measurement of these elements is in Appendix A.

Demographic

Age:	Age on 5/31/19
Gender:	Male/Female
Race:	Black/African American; White; Hispanic/Latino; Other

Economic Resources

Homelessness:	Verified as homeless in SY18-19 in accordance with the McKinney-Vento (MKV) Assistance Act
TANF:	Received TANF benefits between 5/31/18 – 6/1/19
Medicaid >365 days:	Received Medicaid for >365 cumulative days between 5/31/13 – 6/1/19

Childhood Maltreatment

Removed from Home:	Outcome of a CFSA referral was the youth being removed from home due to maltreatment
Child Abuse:	Had a substantiated or inconclusive finding, or family assessment abuse matter on record with CFSA as of 5/31/19
Child Neglect:	Had a substantiated or inconclusive finding, or family assessment neglect matter on record with CFSA as of 5/31/19

Educational Experience

Grade Retention:	Whether a youth was enrolled in the same grade in SY18-19 as they were in SY19-20
Excused Absences:	Count of a youth's number of excused absences in SY 18-19
Unexcused Absences:	Count of a youth's number of unexcused absences in SY 18-19
Suspensions:	Count of a youth's number of suspensions in SY 18-19

Mental, Behavioral, and Neurodevelopmental Disorder Diagnoses and IEP Eligibility

Internalizing Disorder:	Has internalizing disorder diagnosis but no externalizing disorder, according to Medicaid claims data
Externalizing Disorder:	Has externalizing disorder diagnosis but no internalizing disorder, according to Medicaid claims data
Comorbid Disorder:	Has internalizing and externalizing disorder diagnoses, according to Medicaid claims data
Psychotic Disorder:	Has psychotic disorder diagnosis, according to Medicaid claims data

Specific Learning Disorder: Has specific developmental learning diagnosis, according to Medicaid claims data

Specific Motor Disorder: Has specific developmental motor disorder diagnosis, according to Medicaid claims data

IEP: Whether a youth had an Individualized Education Program (IEP) in place in SY18-19

Neighborhood Environment

Gun Violence Hot Block: Whether a youth's residential address is on one of the 25 blocks with the most violent gun crime incidents

III. Profile of Youth in the District of Columbia With Juvenile Justice System Involvement

While most young people engage in some form of delinquent behavior, only a small proportion engage in serious delinquency and become involved in the juvenile justice system. Involvement in the juvenile justice system does not mean that a youth is guilty of the accused behavior, nor does it represent the totality of youth delinquency. With these caveats in mind, it can still be useful to observe measurable differences between youth involved in the justice system involvement and youth who are not.

For this study, we drew a random sample of youth enrolled in DCPS, public charter schools, and DYRS education programs during the 2018 – 2019 school year. The previous section briefly describes the factors included in the analysis with further details available in Appendix A. Table 1 presents summary statistics for each factor.[5]

Table 1: Descriptive Statistics for Sample

Average Age 14.9			
Male: 54.7%	Female: 43.3%		
Black: 74.8%	Hispanic: 15.9%	White: 6.5%	Other: 2.8%
Homelessness: 6.5%		TANF 15.3%	
Medicaid >365 days 59.0%			
Removed From Home 5.9%		Reported Neglect 25.5%	
Removed 1.7 times on average		Reported Abuse 13.4%	
Age of First Removal 7.9			
Average Excused Absences 6.2		Suspended 20.2%	
Average Unexcused Absences 16.0		2.1 Average Suspensions	
Grade Retained 11.7%		5.9 Average Days Excluded	
Internalizing Only 7.7%		Externalizing Only 5.8%	
Comorbid Disorders 9.1%		Psychotic Disorder 1.8%	
Specific Learning Disorder 9.6%		Specific Motor Disorder 3.2%	
IEP 25.4%			
Hot Block 9.1%			

We matched sampled youth to justice system data to identify which youth became involved in the juvenile justice system between June 1, 2019 and July 31, 2020. We define juvenile justice system involvement as a youth being arrested or petitioned in the follow-up period.[6] It is important to note that the COVID-19 pandemic may influence the number of youth arrests. Of public-school youth in the District, 4.4% became involved in the juvenile justice system during the follow-up period.

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[5] Due to an over-sampling of youth involved in the juvenile justice system, certain data elements presented in Table 1 – including the share of students with suspensions and IEPS – are upwardly biased relative to the population means.

[6] Justice system involvement does not, in this analysis, mean that a youth has been adjudicated delinquent or found guilty of any charge. Rather, it encompasses any contact with the justice system from arrest through conviction.

There are many differences between youth involved in the juvenile justice system and those who are not, but not all factors statistically contribute to juvenile justice system involvement. The differences between youth who were arrested or petitioned and those who were not involved in the justice system are illustrated in Table 2. All differences presented below are statistically significant at the .05-level.

Table 2: Differences Between Youth With No Juvenile Justice System Involvement and Youth With Juvenile Justice System Involvement

Youth Without Juvenile Justice System Involvement	Youth With Juvenile Justice System Involvement
Average Age 14.7	Average Age 15.6
Male: 49.7% Female: 50.3%	Male: 70.9% Female: 29.1%
Black: 69.1% Hispanic: 18.9% White: 8.5% Other: 3.5%	Black: 93.0% Hispanic: 6.2% White: 0.1% Other: 0.7%
Homelessness 4.8% TANF 12.3% Medicaid >365 days 53.8%	Homelessness 11.7% TANF 24.1% Medicaid >365 days 73.3%

Removed from Home 2.9%
    Age of First Removal 6.4
Reported Abuse 10.2%
Reported Neglect 17.0%
	Removed from Home 14.7%
	    Age of First Removal 9.3
	Reported Abuse 23.0%
	Reported Neglect 49.8%

Suspended 11.8%
    Average Suspensions 1.7
    Days Excluded 4.4
Grade Retained 5.8%
Average Excused Absences 5.7
Average Unexcused Absences 13.5
	Suspended 44.2%
	    Average Suspensions 2.3
	    Days Excluded 7.2
	Grade Retained 30.2%
	Average Excused Absences 7.6
	Average Unexcused Absences 38.6

Internalizing Only 10.2% Externalizing Only 4.1% Comorbid Disorders 6.4% Psychotic Disorder 0.7% Specific Learning Disorder 6.9% Specific Motor Disorder 1.7% IEP Eligible 18.9%	Internalizing Only 45.1% Externalizing Only 10.3% Comorbid Disorders 43.7% Psychotic Disorder 4.8% Specific Learning Disorder 17.1% Specific Motor Disorder 7.7% IEP Eligible 44.1%
Hot Block 7.8%	Hot Block 13.0%

Risk of Juvenile Justice System Involvement

Not all youth face the same risk factors or have the same protective factors. As with the earlier iteration of this report, we included the factors that research has generally accepted as most influential in whether a youth comes into contact with the juvenile justice system.

We constructed a multivariate logistic regression model to test the relationship between each risk/protective factor and likelihood of juvenile justice system involvement controlling for all other factors. After calculating the predicted probability of juvenile justice system involvement for each youth in the sample we divide the sample into risk quartiles. Most youth with involvement in the juvenile justice system (93.3%) had predicted probabilities that placed them in the top-two risk quartiles and 78.3% were in the 4th (highest) risk quartile.

The average predicted probability of youth in the highest risk quartile is 12.8% while the average predicted probability for the lowest risk quartile is 0.3%. This means that, on average, youth in the highest risk quartile have a 12.8 out of 100 chance of becoming juvenile justice system involved compared to a 0.3 out of 100 chance for youth in the lowest-risk quartile. These statistically significant differences indicate that the number of risk factors a youth has greatly increases their chance of juvenile justice system involvement. However, as such a small minority of youth – even in the highest risk quartile – ever become system involved these factors are not deterministic.

As shown above in our comparison of youth with juvenile justice system involvement and youth without juvenile justice system involvement, there are clear differences between the risk quartiles, presented below.

Table 3: Descriptive Statistics for Sample Quartiles

Quartile 1 (lowest risk)		Quartile 2	
Average Age 14.1		Average Age 14.9	
Male: 30.3% Female: 69.7%		Male: 42.6% Female: 57.4%	
Black: 39.1% Hispanic: 27.4% White: 25.9% Other: 7.7%		Black: 73.0% Hispanic: 22.6% White: 3.3% Other: 1.1%	
Homelessness 2.0%	TANF 6.4%	Homelessness 4.6%	TANF 12.2%
Medicaid >365 days 40.9%		Medicaid >365 days 53.2%	
Reported Abuse 2.6%	Removed from Home 0.3%	Reported Abuse 6.2%	Removed from Home 2.3%
Reported Neglect 8.3%	Age of First Removal 4.1	Reported Neglect 15.6%	Age of First Removal 7.0
Average Excused Absences 5.2	Suspended 6.0%	Average Excused Absences 5.5	Suspended 11.9%
Average Unexcused Absences 6.3	Average Suspensions 1.5 Days Excluded 3.3	Average Unexcused Absences 13.8	Average Suspensions 1.5 Days Excluded 3.7
Grade Retained 1.9%		Grade Retained 5.6%	
Internalizing Only 5.0%	Externalizing Only 1.6%	Internalizing Only 8.1%	Externalizing Only 3.8%
Comorbid Disorders 2.2%	Psychotic Disorder 0.5%	Comorbid Disorders 5.3%	Psychotic Disorder 0.7%
Specific Learning Disorder 5.6%	Specific Motor Disorder 0.5%	Specific Learning Disorder 8.9%	Specific Motor Disorder 0.8%
IEP Eligible 8.6%		IEP Eligible 18.7%	
Hot Block 3.2%		Hot Block 7.4%	
Quartile 3		**Quartile 4 (highest risk)**	
Average Age 15.3		Average Age 15.5	
Male: 67.5% Female: 32.5%		Male: 78.5% Female: 21.5%	
Black: 87.1% Hispanic: 10.0% White: 1.1% Other: 1.8%		Black: 95.1% Hispanic: 3.8% White: 0.4% Other: 0.7%	
Homelessness 6.5%	TANF 17.2%	Homelessness 11.0%	TANF 25.5%
Medicaid >365 days 66.2%		Medicaid >365 days 75.8%	
Reported Abuse 18.8%	Removed from Home 4.8%	Reported Abuse 26.4%	Removed from Home 16.2%
Reported Neglect 28.1%	Age of First Removal 9.5	Reported Neglect 49.9%	Age of First Removal 8.6
Average Excused Absences 6.3	Suspended 23.2%	Average Excused Absences 7.9	Suspended 39.5%
Average Unexcused Absences 23.9	Average Suspensions 2.1 Days Excluded 5.9	Average Unexcused Absences 34.9	Average Suspensions 2.3 Days Excluded 7.0
Grade Retained 14.0%		Grade Retained 25.5%	
Internalizing Only 13.2%	Externalizing Only 5.8%	Internalizing Only 16.8%	Externalizing Only 12.1%
Comorbid Disorders 10.7%	Psychotic Disorder 1.5%	Comorbid Disorders 28.5%	Psychotic Disorder 4.4%
Specific Learning Disorder 10.5%	Specific Motor Disorder 3.0%	Specific Learning Disorder 13.2%	Specific Motor Disorder 7.1%
IEP Eligible 29.1%		IEP Eligible 45.2%	
Hot Block 11.0%		Hot Block 14.9%	

IV. Factors Affecting Juvenile Justice System Involvement

Demographic Factors

Our model shows that age, gender, and race have significant associations with juvenile justice system involvement. These findings are consistent with the previous analysis and the existing literature.[7]

Age

The probability of juvenile justice system involvement for youth in the highest-risk quartile peaks at 18.8% when youth are approximately 15.6 years old, with the peak for all youth occurring at 7.4% at about age 16.
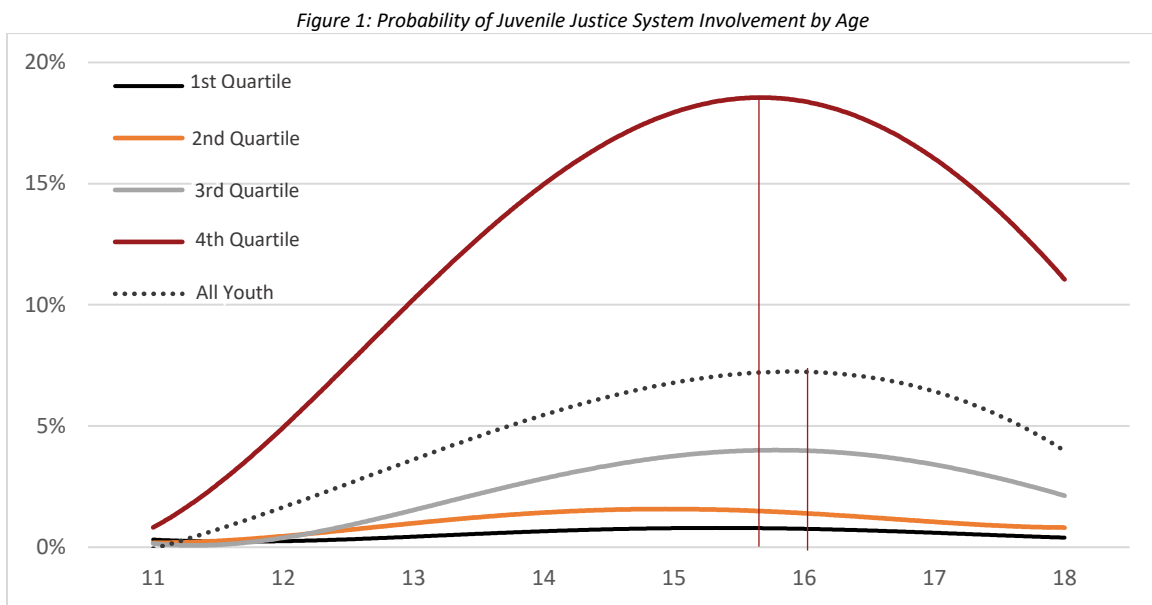

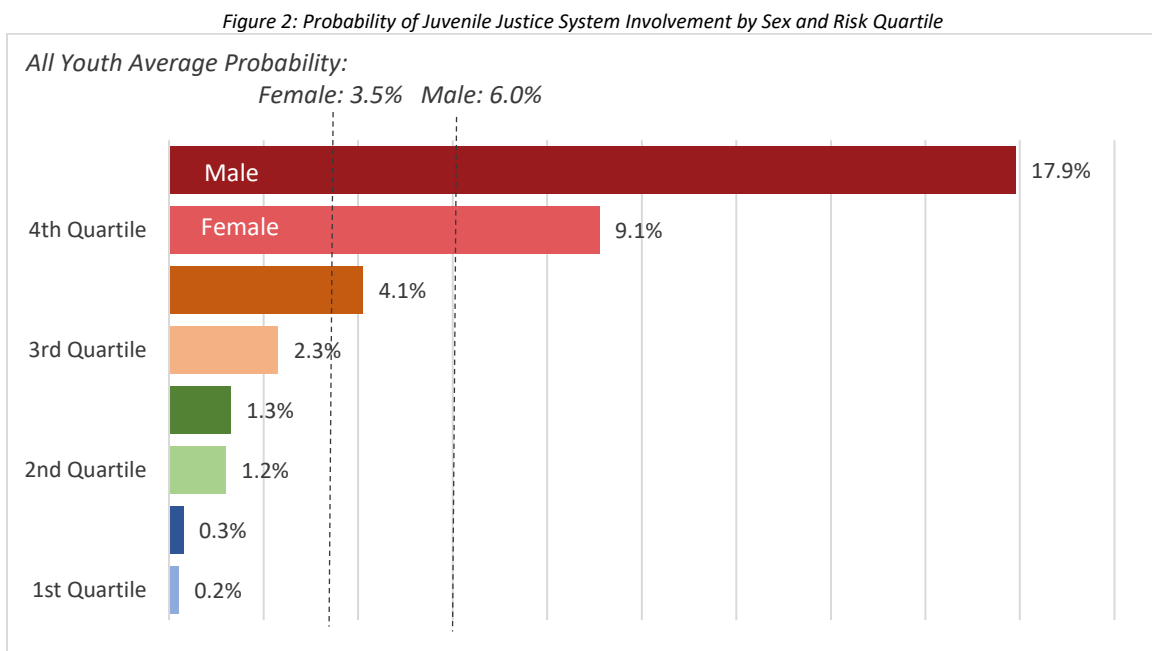Figure 1: Probability of Juvenile Justice System Involvement by Age

Table 4: Probability of Juvenile Justice System Involvement by Age

1st Quartile		2nd Quartile		3rd Quartile		4th Quartile	
11	0.3%	**11**	0.2%	**11**	0.1%	**11**	1.2%
12	0.3%	**12**	0.4%	**12**	0.5%	**12**	4.6%
13	0.4%	**13**	1.1%	**13**	1.7%	**13**	10.2%
14	0.6%	**14**	1.3%	**14**	2.2%	**14**	14.8%
15	0.9%	**15**	1.7%	**15**	4.3%	**15**	18.8%
16	0.7%	**16**	1.3%	**16**	3.8%	**16**	17.2%
17	0.6%	**17**	1.1%	**17**	3.2%	**17**	15.4%
17.9	0.4%	**17.9**	0.8%	**17.9**	2.2%	**17.9**	11.0%

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[7] Byrnes, Miller, and Shafer1999; CJCC 2020; DeLisi and Vaughn 2016; DSG 2015; Hindelang 1981; Moffit 1993

These findings are consistent with the previous report and research literature. The age-crime curve shows an increase in offending through early adolescence with peak likelihood during the teenage years, then a slow decline through the early 20s.[8]

Sex

Holding all else constant, males are nearly twice as likely as females to become involved in the juvenile justice system. The predicted probability of juvenile justice system involvement across all males is 6.0% and the predicted probability across all females is 3.5%. Males in the top risk quartile have the greatest chance of juvenile justice system involvement at 17.9%. Again, these results are consistent with the literature and previous iteration of the Root Cause Analysis report.[9]

Figure 2: Probability of Juvenile Justice System Involvement by Sex and Risk Quartile

Race/Ethnicity

Black youth are statistically significantly more likely to become involved in the juvenile justice system than youth of any other race or ethnically Hispanic youth. In the highest risk quartile, the average predicted probability of juvenile justice system involvement of a youth is Black is 17.0% -- 1.62 times that of ethnically Hispanic youth and 2.36 times as high as the average predicted probability for White youth.

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[8] Piquero et al. 2007; Farrington 1986
[9] CJCC 2020; DeLisi and Vaughn 2016

Figure 3: Probability of Juvenile Justice System Involvement by Sex and Risk Quartile
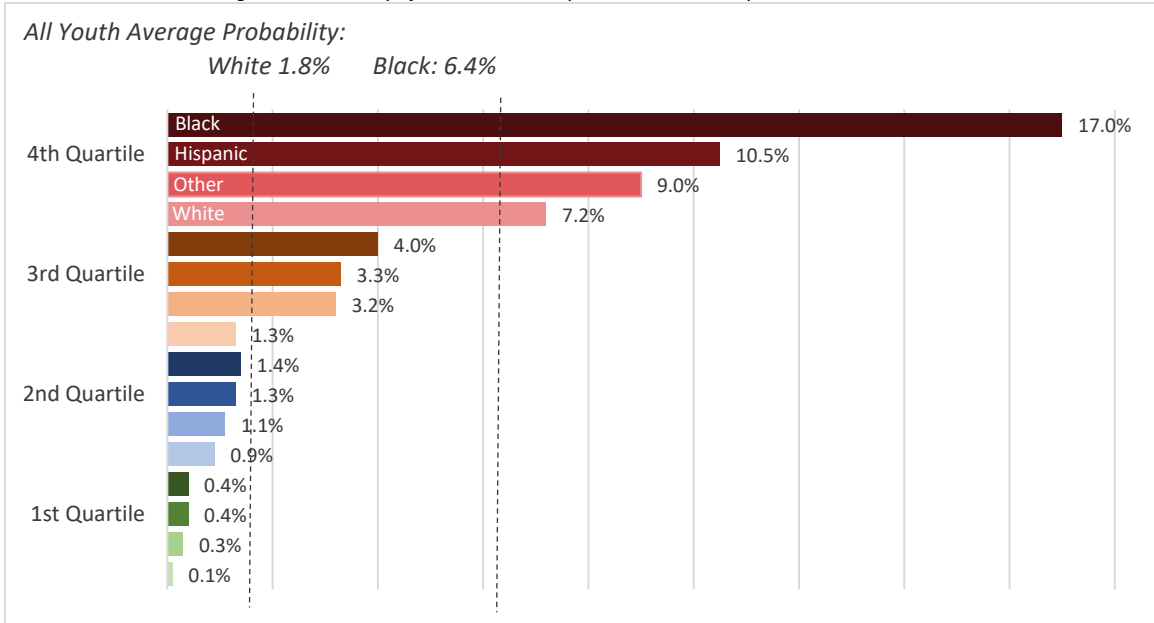
As the data analyzed for this report examines only formal juvenile justice system involvement, we cannot evaluate whether the statistical effect of race is due to differential rates of offending or a differential system response. However, the statistical effects persist even when holding all other risk factors constant. One explanation is that current and historic discrimination results in Black youth being exposed to more risk factors, and thus more likely to engage in delinquent behavior or more likely to face enforcement action for certain offenses. The literature and focus group interviews conducted in the previous report support this as a possible explanation.

Economic Resources

Homelessness

Youth identified as experiencing homelessness are 1.58 times more likely to become involved in the juvenile justice system, holding all other factors constant.

Figure 4: Probability of Juvenile Justice System Involvement Homelessness Status and Risk Quartile
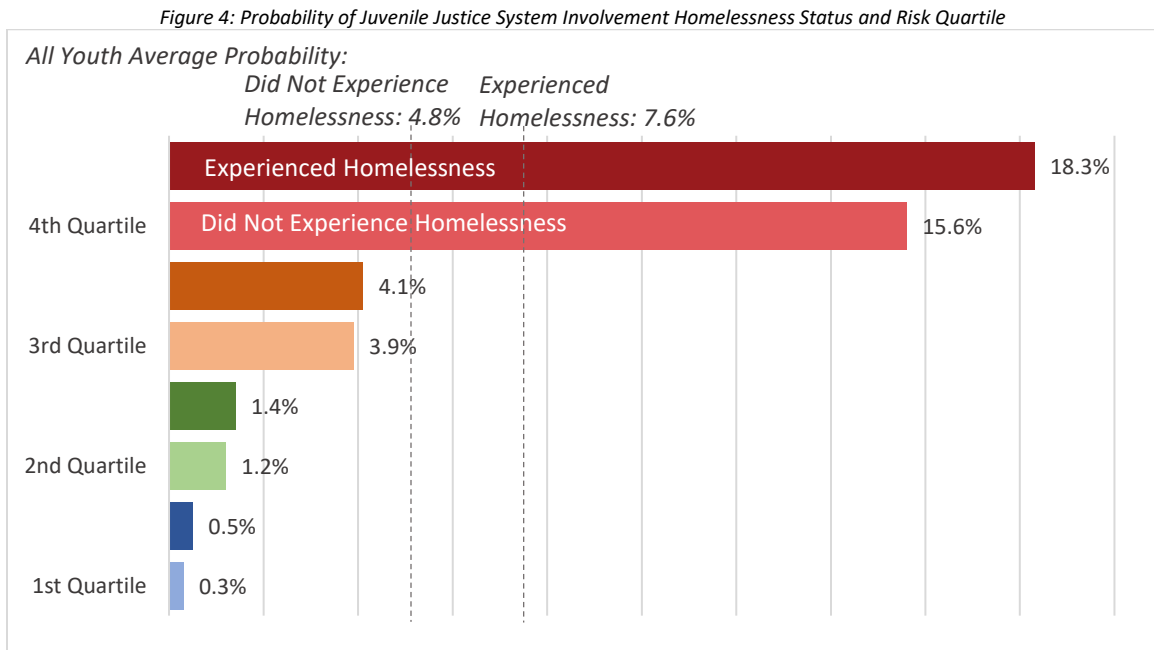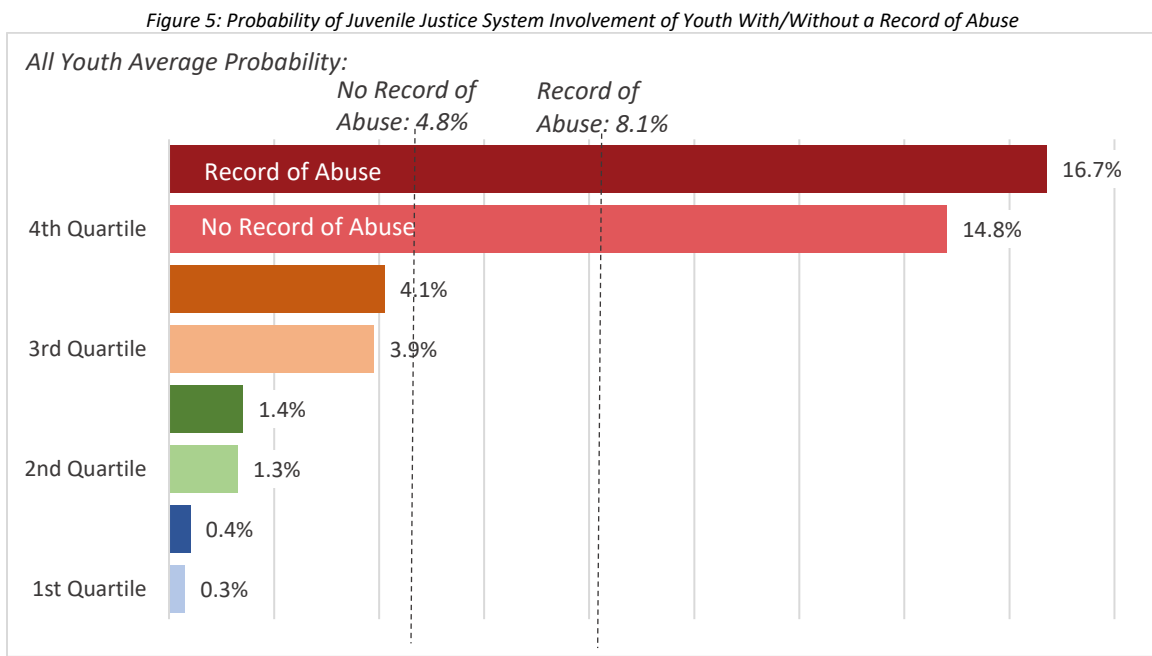

These results may underestimate the impact of homelessness as youth who are experiencing homelessness but have not come to the attention of their local education agency or youth who are not enrolled in the public education system are not included. In addition, there is no flag distinguishing runaway or throwaway youth and youth from families experiencing housing instability, so we cannot separately evaluate the differential effects of extreme poverty and family stability.

The two additional factors of economic instability we included – TANF recipiency and Medicaid eligibility – did not have statistically significant effects. This is consistent with the previous report.

Childhood Maltreatment

Abuse and Neglect

Youth with documented histories of abuse and/or neglect are statistically significantly more likely to become involved in the juvenile justice system. There is a 1.68 times increase associated with having at least one CFSA Family Assessment case or substantiated investigations of abuse. The 1.2 times increase in average probability of juvenile justice system involvement for youth with an open CFSA Family Assessment or substantiated investigation of neglect is smaller, but still statistically significant. These results are consistent with the academic research on childhood maltreatment.[10]

Figure 5: Probability of Juvenile Justice System Involvement of Youth With/Without a Record of Abuse

All Youth Average Probability:
No Record of Abuse: 4.8%
Record of Abuse: 8.1%

Record of Abuse — 16.7%
No Record of Abuse — 14.8%
4th Quartile

4.1%
3.9%
3rd Quartile

1.4%
1.3%
2nd Quartile

0.4%
0.3%
1st Quartile

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[10] E.g., Behl 2003; Chiu, Ryan, and Herz 2001; Gisso 2002; Hamilton, Falshaw, and Browne 2002; Loeber and Farrington 2000; Maxfield and Widom 1996; Schwartz and Rendon 1994; Smith and Thornberry 1995; Vidal et al. 2017; Wiig, Wisdom, and Tuell 2003

Figure 6: Probability of Juvenile Justice System Involvement of Youth With/Without a Record of Neglect
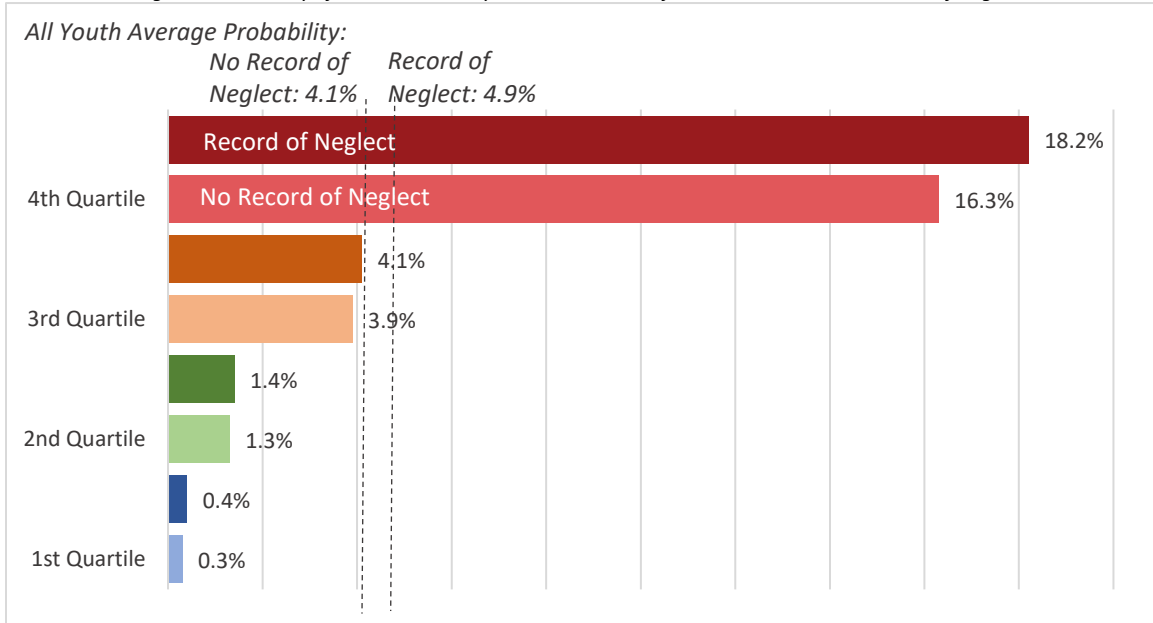
Removal From Home

A history of removal from the home is also statistically significant with respect to the predicted probability of a youth coming into contact with the juvenile justice system. Youth who are removed from their home by CFSA are 3.06 times more likely to become involved in the juvenile justice system.

Figure 7: Probability of Juvenile Justice System Involvement of Youth With/Without a Record of Removal
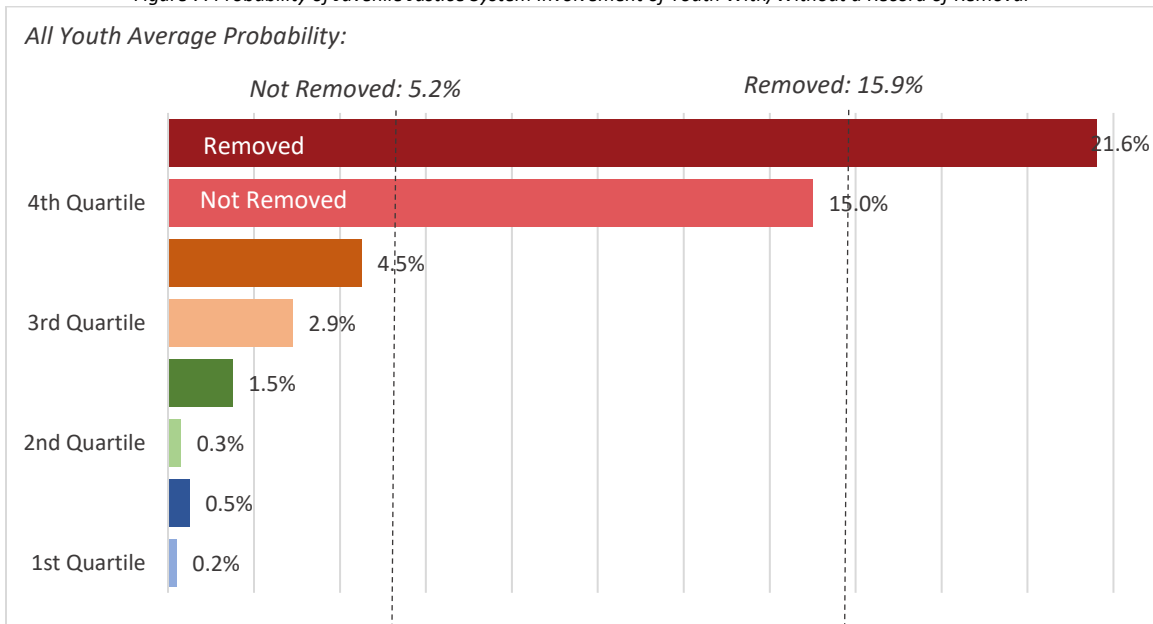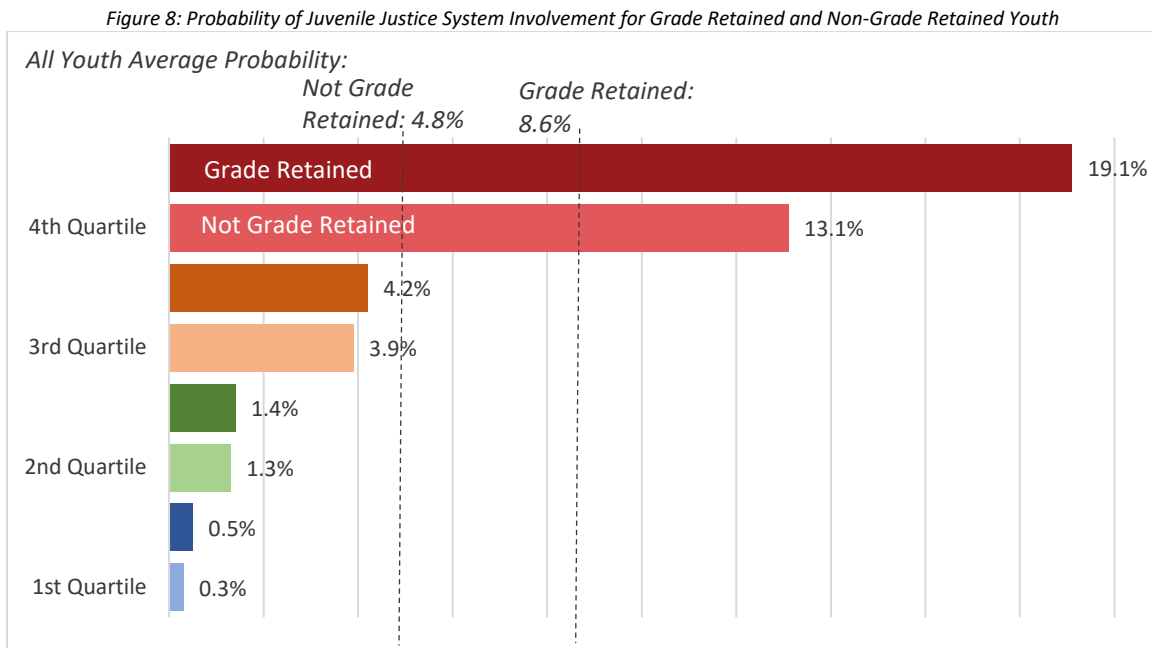
Educational Experience

Educational experience, educational environment, and academic performance have been proven to be both risk factors for delinquency and protective factors against juvenile justice system involvement. The direction and extent of the causal relationship is complex and still up for debate. There is, however, evidence that truancy, grade retention, and school-based discipline are indicators of increased probability of juvenile justice system involvement although the causal direction remains uncertain.[11]

With the data available to us we test these relationships and do find that grade retention and the number of unexcused absences is significantly associated with an increased likelihood of juvenile justice system involvement. Unlike the previous report, the number of suspensions has only a marginally significant effect on the likelihood of juvenile justice system involvement and thus is not included.[12]

Grade Retention

Figure 8: Probability of Juvenile Justice System Involvement for Grade Retained and Non-Grade Retained Youth

All Youth Average Probability:
Not Grade Retained: 4.8%
Grade Retained: 8.6%

Quartile	Grade Retained	Not Grade Retained
4th Quartile	19.1%	13.1%
3rd Quartile	4.2%	3.9%
2nd Quartile	1.4%	1.3%
1st Quartile	0.5%	0.3%

Grade retention, where a student is not promoted to the next grade at the end of the school year, is often treated as an indicator of poor academic performance or engagement. This analysis finds that grade retention is associated with an increase of 1.79 times the likelihood of subsequent juvenile justice system involvement for all youth. Youth in the highest quartile who are grade retained have an average predicted probability of 19.1% compared to non-grade retained youth in the same quartile who have an average predicted probability of 13.1%.

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[11] Christle, Jolivetter, Nelson 2005; Hirschfield and Gasper 2011; Jimerson et al. 1997; and Rocque et al. 2017

[12] Since the prior report, legislation has narrowed the circumstances under which a student may be suspended (D.C. Law 22-157)

Not only is grade retention an indicator of current academic struggles, but it may also signal further disengagement in the future.[13]

Unexcused Absences

Figure 9: Probability of Juvenile Justice System Involvement Increases With the Number of Unexcused Absences
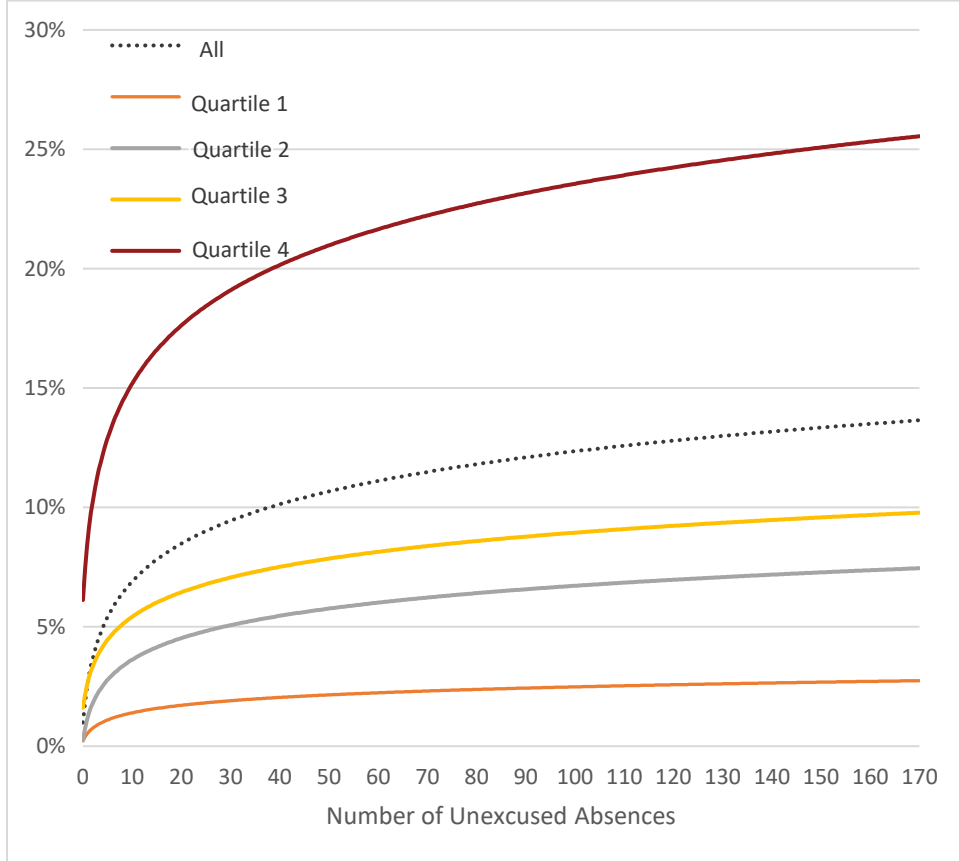
The association between unexcused absences and delinquency is well-documented.[14] We find that the likelihood of juvenile justice system involvement increases by more than 3 times if a youth accrues the average number of unexcused absences (16.0). The predicted probability increases with the number of unexcused absences, but the rate of growth slows after the first 30 unexcused absences.

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[13] Roderick 1994; Shepard and Smith 1990
[14] Rocque et al. 2017

Internalizing-Externalizing Comorbidity and Externalizing Disorders

Figure 10: Probability of Juvenile Justice System Involvement Increases with Internalizing-Externalizing Comorbidity

All Youth Average Probability:

Not Comorbid 3.9%   Comorbid: 10.8%

Comorbid — 20.2%
4th Quartile — Not Comorbid — 14.1%
4.2%
3rd Quartile — 3.2%
1.6%
2nd Quartile — 0.8%
0.4%
1st Quartile — 0.2%

Figure 11: Probability of Juvenile Justice System Involvement Increases with Externalizing Disorders

All Youth Average Probability:

Not Externalizing: 4.4%   Externalizing: 12.9%

Externalizing — 19.6%
4th Quartile — Not Externalizing — 12.5%
4.5%
3rd Quartile — 3.3%
1.8%
2nd Quartile — 1.3%
0.4%
1st Quartile — 0.3%

We include five disorder categories/domains in this analysis: internalizing disorders, externalizing disorders, internalizing-externalizing comorbidity, psychiatric disorders, specific developmental learning disorders, and specific developmental motor disorders. The analysis shows that youth with internalizing-

externalizing comorbidity and youth with externalizing disorders are 2.77 and 2.93 times, respectively, more likely to become involved in the juvenile justice system with all other factors held constant.

The predicted average probability for high-risk youth with comorbid disorders is 20.2% compared to 14.1% for high-risk youth without comorbidity. The predicted average probability for high-risk youth with externalizing disorders is 19.6% compared to 12.5% for high-risk youth without externalizing disorders. We found no statistically significant increase in the likelihood of juvenile justice system involvement for youth with internalizing disorders, psychiatric disorders, specific developmental learning disorders, or specific developmental motor disorders.

We classified the disorders represented in this analysis under internalizing and externalizing groupings in following with the literature.[15] A further discussion of the disorder classification process is in Appendix A.

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[15] Cicchetti & Rogosch, 2002

Neighborhood Environment

Hot Block

We find that youth residing on one of the District's top 25 "hot blocks" – the 25 blocks with the highest incidence of gun violence – are statistically more likely to become involved in the juvenile justice system. The average predicted probability of juvenile justice system involvement for youth who live on a hot block is 9.7% compared to 5.4% for youth who do not live on a hot block. Youth in the highest risk quartile who live on a hot block have a predicted probability of 20.0% of becoming justice-system involved. That is 1.23 times higher than youth in the top quartile who do not reside on a hot block.

Figure 12: Probability of Juvenile Justice System Involvement by Neighborhood Factors and Risk Quartile
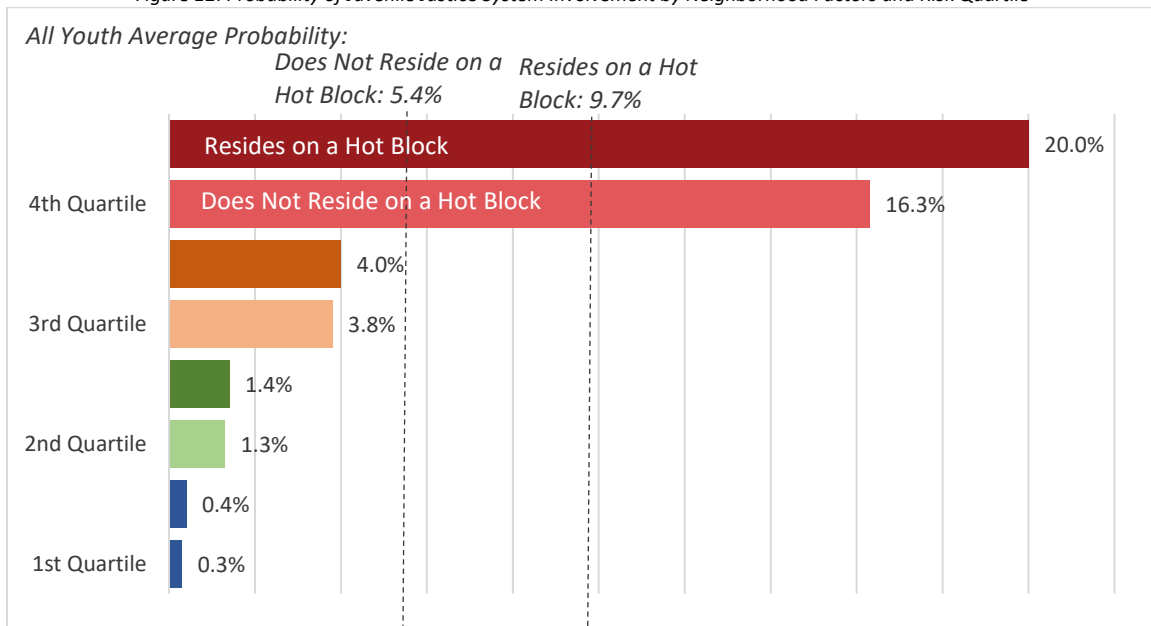
The literature provides evidence exposure to community violence contributes to delinquency.[16] In addition, social disorganization theory argues that ecological factors can hinder the development of social ties. A lack of strong community is a significant risk factor, while a cohesive neighborhood environment may serve as a protective factor against youth juvenile justice system involvement.

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[16] McCord, Widom, and Crowell 2001

V. Protective Factors

Types of Risk and Protective Factors

The Office of Juvenile Justice and Delinquency Prevention (OJJDP) recognizes the following categories of risk factors that are likely to increase the risk of juvenile justice system involvement: individual factors, family factors, peer factors, and school and community factors. This is consistent with the findings of this report as well as the previously published version.[17]

The broad categories above include demographic factors, economic indicators, behavioral and mental health issues, housing instability, exposure to violence, and education and attendance struggles. By identifying which factors have the greatest impact on a young person's risk of becoming juvenile justice system involved, we can attempt to determine which pro-social factors help prevent juvenile justice system involvement among the highest risk youth. This will enable us to examine possible areas for intervention as well as review which evidence-based policies have proven to be the most effective.

Individual Protective Factors

According to OJJDP, "individual-level protective factors focus on the personal characteristics that affect risk and engagement in delinquency, violence, and other problem behaviors."[18] These include problem-solving skills, positive outlook and expectation for the future, and community connectedness. Individual protective factors can be built through a variety of programming, including early childhood education programs, parental support programs, and mentoring programs.

Early Childhood Education

One way to encourage the development of individual-level skills and protective factors is through robust early childhood education programs. Garcia, Heckman, and Ziff (2019) use a randomized controlled trial to find statistically significant reductions in juvenile crime among individuals enrolled in a high-quality, intensive early childhood program with long-term follow-up.[19] These findings agree with the vein of research finding statistically significant reductions in violent adolescent behavior following similar early-childhood interventions.[20]

Even earlier research suggests that large-scale, less targeted programs lead to improved outcomes as well. Reynolds et.al. (2001) evaluate the long-term effectiveness of a federal center-based preschool and school–based intervention programs for urban low-income children.[21] The children participating in the study attended a half-day preschool program for 3- to 4-year-olds, compared to the control group who was not enrolled. Both the pre-school and non-pre-school cohorts were tracked for a fifteen-year follow-up, after which youth who participated in the pre-school program displayed more years of completed education and lower rates of arrest for violent and non-violent crime than non-participants.

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[17] CJCC 2020; OJJDP 2003

[18] OJJDP 2015

[19] Garcia et al. 2019

[20] Moffit 2018; Heckman et al. 2010

[21] Reynolds et al., 2010

Several decades of research support the idea that early childhood education and pre-school programs help youth build robust social skills and support youth success. The District of Columbia has long considered early childhood development a critical issue, and there are several current programs and policies in place that support these goals.

> Parent Infant Early Childhood Enhancement Program (PIECE)
> PIECE has two main components: 1) early intervention screening and assessment, followed by individual and family therapy, Parent Child Interaction Therapy (PCIT) and Child Parent Psychotherapy for Family Violence and 2) support for mothers with mental health issues including access to a psycho-educational parenting group.[22]

> Thrive by Five
> Thrive by Five is the District's first comprehensive childhood health and early learning initiative.[23] The program provides a centralized repository of resources for families and service providers focused on early childhood health and development.

> Birth-to-Three for All Amendment Act of 2018
> This law (D.C. Law 22-179) became effective October 30, 2018 and laid out a comprehensive framework to support youth and families by creating and expanding programs providing access to early childhood education and linking families to other key resources.[24] Some of these resources include:
>
> - *HealthySteps© Program*: supports early childhood development through evidence-based practices linking children to pediatric primary care and child development specialists.
> - *Help Me Grow Program:* provides a free and confidential telephone service that connects families to care coordinators who in turn link families to additional resources and services.
> - *Home Visiting Program*: requires the DC Department of Health to administer funds for home vising services and conduct an analysis of home visiting needs, capacity, and utilization.

Not all early-childhood intervention programs are created equal, however. Poor quality pre-school programs can have minimal positive impact on child development.[25] Conversely, socially diverse pre-school programs can have outsized positive effects.[26]

Mentoring Programs

Mentoring programs have proven to be effective in improving emotional well-being, self-control, and self-esteem of children via non-parental adult support. Mentors can serve as a trusted adult who helps youth develop strong socio-emotional tools and coping strategies, thus enabling them to avoid or navigate interpersonal challenges or conflicts that could otherwise lead to delinquent behaviors.[27]

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[22] DBH 2022

[23] See: https://thrivebyfive.dc.gov/

[24] D.C. Law 22-179

[25] Haskins & Barnett 2010; Pianta et al. 2009

[26] Melhuish et al. 2015

[27] Herrera, Dubois, and Grossman 2013

One example of a mentoring program is the Great Life Mentoring program (GLM). This program aims to provide stability for youth by having them engage in their community with one-on-one support from an adult mentor who is from the community. The program provides mentors a 20-hour training course before pairing them with a youth for monthly supervision meetings. Using attachment theory training, the GLM program positions mentors to connect with youth and reframe experiences and perceptions of self and belonging to solve conflicts.

A research team observed 91 youth who were involved in GLM for a 15-year period while comparatively observing 400 youth who received mental health services by the same agency but did not participate in GLM.[28] Youth in GLM had a favorable trend over time in clinician ratings of their adaptive functioning, as well as less likely to have an unplanned, client-initiated ending to their treatment and more likely to have a planned ending.

Proper implementation is critical for youth mentorship programs. Take, for example, a study examining the effectiveness of a youth mentoring program in Sweden.[29] The researchers randomly assigned eligible 14-year-olds to either the mentor program or to a control group. They then measured the youths' emotional and behavioral levels, as well as substance use through self-reports. While youth with a mentor reported feeling more trusting of their mentors and more likely to reach out for help, there was no statistically significant difference between the mentor group and control group. Ensuring that mentors have the appropriate background to connect effectively with the youth and that there is adequate supervision is key.

There are several agencies and organizations in the District of Columbia that provide youth mentoring services, including DC Dream Center, MENTOR Washington, and the Department of Youth Rehabilitation Services (DYRS).[30] The DYRS Credible Messenger program is a mentoring intervention for youth with juvenile justice system involvement where experienced advocates, neighborhood leaders, and individuals with relevant life experiences serve as credible messengers to help youth transform attitudes and behaviors around violence through a restorative justice mission.

Programs like the Big Brother Big Sister (BBBS) Community-Based Mentoring Program (CBM) can also provide support for at-risk youth and enable them to develop strong intra-community relationships to serve as the bedrock for a support system. Current research supports the efficacy of such mentorship-based programs, but appropriate implementation is key.[31]

These, and other organizations provide mentoring support to youth across the District. The extent of program data that is collected is unclear, but establishing strong working relationships with these organizations, as well as others who provide youth mentoring services, would be beneficial in performing future assessments of the District's mentoring resources.

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[28] DuBois et al. 2018
[29] Bodin 2011
[30] See: https://dcdreamcenter.com/mentoring, https://mentorwashington.org, and https://dyrs.dc.gov/page/after-schoolmentoring-programs for examples.
[31] Matz 2014

Family Protective Factors

Having close family relationships that include support and clear rules and expectations for behavior can be a strong protective factor. Children who experience higher parental involvement in their social, behavioral, and educational development display lower rates of drug use and delinquency.[32] Encouraging parental involvement in a child's school environment as well as providing parents with tools and resources to develop positive parenting habits can bolster these protective factors. In addition to parenting resources, financial security and access to economic resources are important for creating strong family protective factors.

Parental Resources

One program that has shown promise is the Families and Schools Together (FAST) program. The program operates internationally and focuses on at-risk youth by creating a supportive multi-family group environment. Youth, parents, and school staff join weekly after school meetings to come together and form supportive social networks. There is evidence that the program reduces behavioral problems and improves academic performance during and after the term of the program.[33]

While FAST does not currently operate in the District, many of the programs covered under PIECE and Thrive by Five do provide parental support, particularly for very young children.

There are, however, several programs in the District for youth with juvenile justice system involvement or justice-adjacent youth and their families. These include:

> Alternatives to the Court Experience (ACE) Diversion
> The ACE diversion program is designed as a "front door" for all diversions from juvenile justice entities in the District.[34] The objective is to provide services and community supports instead of prosecution for youth who commit status offenses or low-level delinquency offenses.

> Parent and Adolescent Support Services (PASS)
> DHS operates the PASS early intervention program for youth ages 10-17 who have committed status offenses. The program provides evidence-based support to children and their families before referrals of the child or family to the juvenile justice system or child welfare services.

> Child and Family Services Agency (CFSA) Interventions
> CFSA investigates reports of abuse and neglect and, when appropriate, links families to services, offers family team meetings and safety plan development while working with the family to provide safe care within the family setting, provides safe out-of-home care, and assists in re-establishing permanent homes.

Economic Supports and Opportunities

Economic stability – particularly access to stable housing – is an important protective factor for youth and families. Youth who experience homelessness are at a greater risk of becoming involved with the justice system. The District has several strategic plans to address youth homelessness. In addition,

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[32] Ripley-McNeil and Kramer 2021
[33] Kratochwill et al. 2009; McDonald et al. 2006
[34] DC DHS 2022

access to economic resources and opportunities are key protective factors. Some key programs are briefly described below.

Homeward DC
Homeward DC, first released in 2015 and now in its second iteration (Homeward DC 2.0) is a strategic plan to end long-term homelessness in the District of Columbia.[35] The comprehensive approach scaled housing services for families, reformed the family shelter system, and expanded rental subsidies. Recent reports show a steep reduction in the number of families experiencing homelessness on any given night from 1,500 at the start of implementation to 400 as of January 2021.

The District of Columbia Interagency Council on Homelessness (ICH), the Community Partnership for the Prevention of Homelessness (TCP), and the ICH's Strategic Planning Committee recently presented the FY2021-2025 strategic plan for Homeward DC 2.0, outlining future goals for the initiative.[36]

Solid Foundations DC
Solid Foundations DC is a data-driven plan first issued in 2017 that focuses on the needs of the District's youth under 25 with the goal of ending youth homelessness.[37] While most unhoused youth are between the ages of 18 and 24, the plan also addresses the issue of minor youth experiencing homelessness which is a risk factor for juvenile justice system involvement. The core outcomes of the plan are to provide youth (1) stable housing, (2) permanent connections, (3), education and employment, and (4) social emotional well-being. The plan aims to use data driven models to develop a streamlined system to connect youth experiencing homelessness with resources.

Temporary Assistance for Needy Families (TANF)
The TANF program provides cash payments and other support services to low-income families with children.[38] According to the federal Department of Health and Human Services, an average of 6,354 families in the District of Columbia per month received benefits during fiscal year 2021.[39]

In addition to cash payments, the DC Department of Human Services (DHS) provides access to the TANF Employment Program (TEP), childcare subsidies, behavioral, mental, and substance abuse support, and the Tuition Assistance Program Initiative for TANF (TAPIT).

Mayor Marion S. Barry Summer Youth Employment Program (MBSYEP)
The MBSYEP is an initiative funded by the DC Department of Employment Services (DOES) that provides youth ages 14-24 with subsidized placements in summer work experiences.[40] More than 5,200 individuals under the age of 17 participated in 2020.[41] Research shows that

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[35] DC ICH 2022
[36] ICH 2022
[37] Ibid.
[38] DC DHS 2022
[39] HHS 2021
[40] DOES 2022
[41] DOES 2021

participation in summer youth employment programs reduces delinquency in the following years.[42]

<u>Other Guaranteed Income Programs</u>

- THRIVE East of the River[43]
- DC Department of Human Services (DHS) Career Mobility Action Plan (Career MAP) initiative[44]
- Strong Families, Strong Future DC pilot, administered by the Deputy Mayor for Planning and Economic Development (DMPED), in partnership with Martha's Table[45]

Peer Protective Factors

Youth peer relationships have a strong impact on behavior. Close connection to non-delinquent peers has a mitigating effect on the risk of juvenile delinquency, while close connections to youth who are engaged in delinquent behavior increase the risk.[46] Peer mediation and bullying prevention programs can serve to foster relationships, improve social skills, and reduce conflict.[47]

Bullying Prevention Programs

Research shows that both victims and perpetrators of childhood bullying are at greater risk of later delinquency.[48] To that point, robust bullying prevention programs can help reduce conflict between youth and teach social problem-solving skills while also mending relationships that, if left unaddressed, could lead to future conflict.

The Olweus Bullying Prevention Program is a well-researched program first established in the 1990s. It focuses on creating a safe and positive school environment, with the goals of reducing existing bullying problems, preventing new ones, and creating better relations among peers. The four principles that form its base are: adults at school should (a) show warmth and positive interest in students, (b) set firm limits to unacceptable behavior, (c) use consistent positive consequences to acknowledge and reinforce appropriate behavior, and (d) function as authorities and positive role models. Researchers created a large-scale study to evaluate the effectiveness of the program from grades 3 to 11 in two different evaluations, one following 210 schools for two years and another following 95 schools for three years.[49] Over the course of the study, occurrences of reported bullying behavior declined across all grades.

Another group of researchers performed a study on a program focused on cyberbullying. Media Heroes is a program in Germany that seeks to prevent cyberbullying by promoting empathy and knowledge about internet safety and legal consequences in a single-day session. A team of researchers analyzed Media Heroes to find if there were spillover effects on traditional bullying.[50]

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[42] Kessler et al. 2022; Modestino 2019

[43] LISC 2021

[44] D.C. DHS 2022

[45] See: https://marthastable.org/sfsf/

[46] Osgood et al. 2013; Losel and Farrington 2012; Gest et al. 2011

[47] Landry 2003

[48] Cullen et al. 2008

[49] Limber et al. 2018

[50] Chaux et al. 2016

The team evaluated 1,075 adolescents from ages 11-17 and randomly assigned some classrooms to use the intervention. Those who participated in the program saw a significant decline in cyberbullying behavior compared to the control group where researchers observed an increase in cyberbullying. In addition, those who participated in the longer sessions significantly decreased traditional bullying, while the other groups did not significantly change. Both the Olweus and Media Heroes programs are just two examples of how bullying prevention programs can help target risk factors and build pro-social behaviors.

In June 2013 the District created the Citywide Youth Bullying Prevention Program.[51] From the program website: "The program works with youth-serving government agencies, District schools and youth-serving government grantees to ensure bullying prevention policies are adopted and implemented in ways consistent with the best practices adopted by the Youth Bullying Prevention Task Force." While the COVID-19 pandemic disrupted in-school implementation of the Youth Bullying Prevention Act of 2012, reports of bullying fell as students pivoted to a remote learning status. Future status reports may provide more insight into the program's effectiveness.

School-Related Protective Factors

A youth's school and classroom environment affect school attendance and performance. Developing a positive school climate can serve as a strong protective factor, leading to more pro-social behaviors.[52] Programs like in-school career academies and vocational programs can help at-risk youth develop relationships and a sense of purpose, leading to a reduction in delinquency.[53]

Classroom Behavior Management Programs

The Good Behavior Game (GBG) is one example of a classroom behavior management program. GBG seeks to create a classroom environment that benefits all students by socializing children into their role as a student and teaches them to regulate their own behavior as well as their classmates' behavior, leading to reductions in aggressive and disruptive behaviors, as well as a reduction in the likelihood of substance abuse.[54] In the GBG, students are assigned groups, and if any member of the group violates established classroom rules the entire group received a demerit. At the end of the session, groups with the fewest demerits receive positive reinforcement, and less successful groups are encouraged to try again.[55]

By randomly assigning one of three kinds of intervention programs (including GBG) to classrooms within several schools, researchers found that youth who participated in GBG experienced a decreased likelihood of developing substance use disorders or exhibiting aggressive and disruptive behavior. These effects persisted in the study follow-up with the intervention exhibiting both immediate and long-term benefits.

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[51] DC OHR
[52] Gage et al. 2018; Logan-Greene et al. 2011
[53] Kemple 2004; Tolan et al. 2014
[54] Kellem et.al. 2008
[55] AIR 2022

Another example of the effectiveness of classroom behavior management tools comes from an evaluation of the Incredible Years (IY) classroom management program.[56] The IY program is based in the United Kingdom and aims to improve teacher-student relationships as well as develop children's social and problem-solving skills by implementing proactive teacher strategies intended to reduce behavioral issues and increase social skills.[57] The research team assigned six classrooms to use the IY program and another six classrooms to teach without it. The students who were in the classroom that utilized the IY program exhibited a significant reduction in classroom off-task behavior, a reduction in negative teacher behavior towards target children, and a reduction in negative child behavior toward teachers.

Afterschool Recreational Programs

Afterschool programs can be a beneficial way for at-risk youth to gain social skills and build better relationships with adults and peers and can help fill leisure time outside of school to reduce the potential for violent or illegal activities.

Fit2Lead is a Miami-Dade County, FL afterschool park program that exemplifies this. The program runs from September to June and provides academic support, recreational activities, and life skills through workshops and other resources. Researchers identified parks that offered the program while analyzing juvenile arrest rates in the same zip code.[58] They found that after two years of program implementation, juvenile arrest rates decreased significantly in zip codes that implemented the program. In zip codes that did not implement the program, juvenile arrests remained steady or increased.

Positive Youth Development (PYD) programs are another example of afterschool programs that can help youth gain important life and social skills and carry on those skills into adolescence and adulthood. Many PYD programs follow the outcome model of the Fives C's, which are Competence, Confidence, Connections, Character, and Caring. One such program is the Sport Hartford Boys Program in Hartford, CT. The program focused on creating situations for boys from minority communities to develop an understanding of themselves. Through sport and non-sport-related activities the youth complete psychosocial tasks including developing a sense of agency, industry, or personal identity. A research team interviewed eight boys and their parents, asking them why they became involved and why they continue to be a part of the program.[59] They found that participants initially became involved because the program focused on sports related activities and that their peers were involved in the program as well. However, the participants stated that the main reason they stayed involved was because the program kept them from getting involved in at-risk behaviors.

The DC Department of Parks and Recreation (DPR) provides a wide array of youth-focused programming. District-wide recreation centers provide youth with safe spaces for structured and unstructured after-school and summer activities.

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[56] Hutchings et al. 2013
[57] See: https://incredibleyears.com
[58] D'Agostino 2019
[59] Fuller et al. 2013

Educational Factors

Engagement in a positive school environment is a protective factor for high-risk youth. The District has established several taskforces and legislative actions to encourage youth engagement with the education system.

> The "Student Fair Access to School Amendment Act of 2018"
>
> This amendment was enacted August 25, 2018, and established parameters for local education agencies (LEAs) to develop school climate and discipline policies to limit out-of-school suspensions, expulsions, and disciplinary unenrollment beginning SY19-20 for K-8 and SY20-21 for grades 9-12 (D.C, Law 22-157).[60] The purpose of the law was to limit out-of-school disciplinary practices in order to encourage the development of positive school climates and prevent student disengagement, which is a risk factor for juvenile justice system involvement. Some disciplinary alternatives include:
>
> - o *Restorative Justice* – emphasizes improving students' social and emotional development and provides alternatives to suspension and expulsion.
> - o *Conscious Discipline Brain State Model* – an evidence-based and trauma-informed approach to integrating social and emotional learning with classroom management to modify student and teacher behavior.

Community Protective Factors

Perhaps the broadest category of protective factors is community-based protective factors. These can include the physical environment, presence of social supports, access to economic opportunities, housing stability, and other factors. The links between a youth's neighborhood and their development are well documented.[61] Community expectations for youth, safety, and the presence of strong positive role models can all act as protective factors.

Community Involvement Programs

Community involvement programs are another way for youth who are at risk of becoming justice-system involved to gain social skills while providing alternatives to illegal activities. One such program is the Communities That Care (CTC) prevention system. CTC implementation in a community follows a five-step plan over a period of 12-18 months. This process involves identifying community issues, collecting data to analyze risk and protective factors, and working together to create measurable outcomes that the community can work to achieve. The goal is to create a community prevention board made up of public officials and community leaders who work to reduce risk factors and promote protective factors.

Researchers performed a longitudinal cluster-randomized trial involving 24 communities in seven states to identify the long-term impacts of the CTC prevention system as well as perform a benefit-cost analysis.[62] They analyzed the impact of the system from grade 5 to age 23 and found that substance use decreased by 15% and that CTC led to a 20% relative improvement in college completion.

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[60] D.C. Law 22-157
[61] Brooks-Gunn et al. 1993
[62] Kuklinski et al. (2021)

Community environment plays a key role in childhood development and can serve as either a risk factor or protective factor. Establishing safe, community-oriented neighborhoods can reduce the likelihood of juvenile justice system involvement. The following are some District-based programs and services that operate in the community environment.

Violence Interrupters
The Office of Neighborhood Safety and Engagement (ONSE) Violence Intervention and Prevention Program and the Office of the Attorney General's (OAG) "Cure the Streets" Violence Interruption Program use individuals with credibility within their communities to help diffuse potentially violent conflicts and support individuals at high-risk of being affected by violence. The new DC Peace Academy helps provide violence interrupters with personal and professional development through a 13-week course of evidence-based curriculum.[63]

Department of Parks and Recreation (DPR) Programs
The DC DPR operates parks and recreation centers throughout the District of Columbia. These facilities provide both structured programs and unstructured environments for youth to engage with their community and learn valuable social, emotional, and behavioral skills.

Mental and Behavioral Health Protective Factors
Unaddressed mental and behavioral health challenges are risk factors for juvenile justice system involvement. Young people and their families have access to a variety of services in the District of Columbia.

Becoming a Man (BAM)©
The BAM © program provides trauma-informed school-based counseling, mentoring, and character development for male students in 7th-12th grade.[64] The program seeks to, "deliver a comprehensive counseling, mentoring, and postsecondary readiness program that empowers young men in grades 9-12 with the tools and confidence they need for personal, academic, and career success," and has recently been rolled out in some DCPS schools.[65]

Healthy Futures Program
This program operates in 24 child development centers located throughout the District and offers child- and family-centered consultation services to care providers and family members. The program aims to build participants' skills and capacity to promote social emotional development, prevent escalation of challenging behaviors, and increase appropriate referrals for additional assessments and services.[66]

Child and Adolescent Mobile Psychiatric Service (ChAMPS)

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[63] See: https://www.peacefordc.org/dc-peace-academy.
[64] See: https://www.youth-guidance.org/bam-becoming-a-man/
[65] Ibid.
[66] DBH 2014

The ChAMPS emergency response service is a free, 24-hour mobile emergency service for families and children experiencing an emotional or mental health crisis in the District.[67] Depending on the circumstances, clients may receive in-home services or out-of-home care and placement.

Juvenile Behavioral Diversion Program (JBDP)
The JBDP links court-involved youth under the age of 18 with appropriate community-based mental health services and supports. Eligible juvenile status offenders have an option to participate in mental health services instead of facing prosecution.

Overview of Programs

When debating program appropriateness and efficacy, meta-analyses can provide a concise overview and comparison of options. One such meta-analysis identifies studies with delinquency, juvenile offending, or recidivism as an outcome of interest; studies that involved at-risk youth; studies that focused on selective prevention programs; and studies with experimental or quasi-experimental design.

Researchers found that effectiveness is not necessarily determined by the type of program but rather what the program teaches. All the programs in the study had statistically significant effects with a mean reduction in delinquent behavior of 13%. However, behavior-oriented programs focusing on learning positive behavior through role models, preparing behavior contracts, improving parenting skills, and family-based programs yielded the largest effect, leading to a significant reduction in offending by 30%. They also found that individual, multimodal programs, as well as those carried out in the family context, proved to be more beneficial than group-based programs.

Youth crime prevention programs are an effective way to bring about protective factors while also reducing risk factors in youth who are at risk of becoming involved in the juvenile justice system. The literature shows that each of these types of programs effectively reduces risk factors and implements protective factors. Additionally, the literature identifies the limits of the studies and cautions care when considering what types of programs to implement. Behavioral based programs seem to have the strongest effect.

Future Opportunities to Evaluate District-Specific Protective Factors

A review of existing literature demonstrates the existence of effective evidence-based programs and interventions that can reduce the likelihood of juvenile justice system involvement. The District of Columbia currently operates many of these programs, but further systemic, regularized data collection and sharing will be necessary to fully evaluate the impact on at-risk youth in the District.

Establishing data collection best practices and building collaborative relationships between District agencies and local non-profit organizations who provide services will enable future analyses to identify the specific impacts of these protective factors.

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[67] See: https://www.catholiccharitiesdc.org/ChAMPS/

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Appendix A: Administrative Data
Sample and Time Frame

To examine the statistical effect of the hypothesized explanatory factors on youth crime, we drew a representative sample of youth who were born between June 1, 2001, and June 1, 2008, and enrolled in 6 – 12th grade in District of Columbia public schools (DCPS) or public charter schools (PCS) in the 2018 – 2019 school year.

We limited our sample to youth born between June 1, 2001, and June 1, 2008, to ensure that all youth in the analysis were eligible for juvenile justice system involvement at some point between May 31, 2019, and July 31, 2020, meaning they were under 18 for at least one day and over 10.5 years old at the start of the period of observation. While it is legally possible for youth under 10 to be arrested and charged in the District, it is exceptionally rare in practice, and no youth under the age of 11 was arrested during the period of examination. The justice-involvement dates were selected to allow the explanatory factors to temporally precede juvenile justice system involvement.

Our sample is further limited to individuals enrolled in DCPS or PCS because it was drawn from enrollment census data provided by the Office of the State Superintendent (OSSE), which is the state education agency for the District of Columbia. Using OSSE enrollment information as the sampling frame excludes youth enrolled in private schools from being included in the sample. However, it is not possible to include youth who are enrolled in private schools in the sampling frame because while private schools report enrollment or individual-level education data to OSSE, there is no centralized information on attendance or disciplinary involvement. Additionally, there is no data on District residents who attend schools in Maryland or Virginia. OSSE's enrollment list is, therefore, the most exhaustive listing of school age youth. The census provided by OSSE contained 32,527 youth born between June 1, 2001 and June 1, 2008. Based on population estimates (DC Office of Planning)[68], this constituted an estimated 73% of youth between ages 10 – 17 as of July 1, 2019, thus approximately 12,000 youth are not included in the sampling frame. Approximately 4,200 youth are enrolled in DC private schools;[69] the rest of the youth may be enrolled in private schools outside of DC[70], enrolled in homeschooling or adult education (GED), or not enrolled in school despite DC's compulsory school attendance law.[71]

To ensure adequate inclusion of juveniles with juvenile justice system involvement, we supplemented the original OSSE frame with a list of youth arrested by MPD from June 1, 2019 – July 31, 2020. We then matched the arrested and/or petitioned youth to the OSSE sampling frame.

In total, 3.5% of youth in the sampling frame were justice-system involved. Because this constitutes such a small proportion of the population, we used a stratified random sampling method with oversampling for youth with juvenile justice system involvement and analytical post-stratification weights. We drew random samples from within each of two mutually exclusive stratum: (1) youth who did not become involved in the juvenile justice system (96.54%) and (2) youth who were arrested (3.46%). We drew a

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[68] 44,323

[69] In SY19-20, according to OSSE, there were approximately 4,700 District residents in 6 – 12th grade enrolled in private schools in the District of Columbia, which comprises approximately 13% of youth.

[70] OSSE does not track the number of DC residents enrolled in private schools outside of the District of Columbia.

[71] 3 D.C. Code §§ 38-201 – 38-213.

sample of 7% of youth without juvenile justice system involvement (N=2210), and 70% of the stratum of youth with juvenile justice system involvement (N=771) for a total sample size of 2981.[72]

The weighted sample is representative with regard to race, gender, age, school grade, school sector with no statistically significant differences between the sampling frame proportions and the sample proportions at the .05-level.

Table A.1: One Sample T-Test of Sample Proportions Compared to Sampling Frame

	% DIFFERENCE	P-VALUE
RACE/ETHNICITY		
ASIAN	-0.005	0.826
BLACK	0.038	0.287
WHITE	-0.019	0.432
AMERICAN INDIAN	0.000	0.984
HAWAIIAN/PACIFIC ISLANDER	-0.001	0.972
TWO +	0.001	0.965
HISPANIC OR LATINO (ANY RACE)	-0.014	0.596
GENDER		
FEMALE	-0.043	0.256
AGE*		
11	0.001	0.678
12	-0.032	0.332
13	-0.027	0.381
14	-0.008	0.740
15	0.015	0.571
16	0.027	0.379
17	0.034	0.312
18	-0.010	0.679
SCHOOL TYPE		
DCPS	0.034	0.312
PCSB	-0.033	0.319
GRADE**		
6	-0.037	0.289
7	-0.016	0.525
8	0.004	0.869
9	0.045	0.245
10	0.011	0.662
11	0.004	0.866
12	-0.010	0.695
* AGE AS OF 6/1/2019 ROUNDED TO THE NEAREST INTEGER		
** GRADE IN SY2018-2019		

Data and Measurements

Dependent Variable

Juvenile Justice System Involvement. Juvenile justice system involvement is a binary variable (0/1) with 1 indicating that an individual was arrested or petitioned for one or more delinquent offense between

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[72] Sample sizes selected for a 2.5% margin of error at a 95% confidence interval.

June 1, 2019 and July 31, 2020. This excludes youth who were diverted pre-arrest and youth who had interactions with police that did not result in arrest. A petition is a charging document filed by the state in juvenile court alleging that the juvenile is delinquent and describing the alleged offenses committed and is comparable to a charging document in adult criminal court.

Arrest or petitioning is a commonly used measure of whether an individual has committed a crime but has substantial recognized shortcomings. This measure captures whether an individual was, at some point, suspected of committing a crime and processed by the justice system. In fact, the individual may not have committed the crime for which they were arrested or petitioned. Additionally, this measure under-reports individuals who engage in delinquent behavior who do not come to the attention of the justice system or who are not processed.

Independent Variables

Data Process. In addition to the education data and criminal justice data provided by OSSE, MPD, and DCSC, we received identified data from the Department of Human Services (DHS), the Child and Family Services Agency (CFSA), and the Department of Health Care Finance (DHCF). Because we could not share identifying information on youth in the sample with DHS, CFSA, or DHCF due to the Family Educational Rights and Privacy Act (FERPA), these agencies provided us requested information on all youth born between January 1, 2001 and January 1, 2008. Specifically, CFSA provided us data on all youth born within that date range who had a Family Assessment or a substantiated or inconclusive finding after an Investigation. DHS provided us data on all youth born within that date range who received TANF benefits between May 31, 2018 and June 1, 2019. DHCF provided us beneficiary data on youth born within those dates who were Medicaid beneficiaries from June 1, 2012 to June 1, 2019 and claims data on youth born within those dates who had mental health or substance abuse diagnoses[73] or mental health or substance abuse treatment between June 1, 2012 and June 1, 2019. We then matched the DHS, CFSA, and DHCF data to the sampled youth based on first and last name and date of birth and deleted information on youth not included in the OSSE sample.

Demographics. Age, gender, and race were derived from OSSE enrollment data with age calculated from OSSE recorded date of birth.

Table A.2: Descriptive Statistics - Age

	MINIMUM	MEAN	MAXIMUM
AGE (ON MAY 31, 2019)	11.1	14.5	17.9

In SY2018-2019, OSSE collected two categories of gender: male and female. We coded males as "0" and females as "1." There were seven categories of race and ethnicity: Asian, Black/African American (non-Hispanic), Hispanic/Latino of any race, Native American/Alaskan Native, Native Hawaiian/Pacific Islander, Two or more races, and White. For the purposes of this analysis we collapse, Asian, Native American/Alaskan Native, Native Hawaiian/Pacific Islander, and Two or more races into one category,

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[73] ICD-9 codes 290 – 312, V40 and ICD-10-CM codes F06 – F99.

"Other." These categories combined account for less than 3% of the sample and contain numbers too small to report due to privacy concerns. Thus, four race/ethnicity categories are included in the analysis.

Table A.3: Descriptive Statistics – Gender and Race

	CODING	PERCENTAGE	SOURCE
GENDER			
FEMALE	0/1	47.3%	OSSE
MALE	0/1	52.7%	OSSE
RACE/ETHNICITY			
BLACK/AFRICAN AMERICAN (NON-HISPANIC)	0/1	74.6%	OSSE
HISPANIC/LATINO OF ANY RACE	0/1	15.9%	OSSE
WHITE (NON-HISPANIC)	0/1	6.6%	OSSE
OTHER (NON-HISPANIC)	0/1	2.9%	OSSE

Economic Resources

To identify youth in low-income households, we use two proxy measures: TANF recipiency and Medicaid eligibility. Using data provided by DHS, we identified youth in the sample who received TANF benefits between May 31, 2018 and June 1, 2019. We coded youth who received TANF benefits as "1" and youth who did not receive TANF benefits as "0." Because the income threshold for TANF is lower than other benefits like the Supplemental Nutritional Assistance Program (SNAP), this measure identifies the youth from the lowest income families in the year preceding potential criminal justice system involvement.

Medicaid eligibility is determined by identifying youth in the sample who had been income-eligible for Medicaid for a cumulative 365 days or more during SY2018-19 or the preceding five years. We code youth meeting this eligibility criteria as "1" and all other youth as "0." Under the program rules for Medicaid and the Children's Health Insurance Program (CHIP), youth beneficiaries must have incomes at or below 319% of the federal poverty line to qualify based on income. Thus, we can identify youth from households that were lower income for an extended period prior to the observation period.

While the Medicaid and TANF indicators help identify low-income youth, they likely under-identify youth in addition to other shortcomings. First, these measures only identify youth from families who apply for and receive government benefits. Second, there is substantial variation in the resources available for youth near the upper limit of 319% of FPL qualification and those whose families are below the FPL.

Homelessness is a 0/1 indicator of whether a youth was verified as homeless in accordance with the McKinney-Vento (MKV) Assistance Act in the 2018 – 2018 school year using data collected by OSSE as validated by the LEAs.

Table A.4: Descriptive Statistics – Economic Indicators

	CODING	PERCENTAGE	SOURCE
TANF	0/1	15.3%	DHS
MEDICAID ELIGIBLE FOR >365 DAYS	0/1	59.0%	DHCF
HOMELESSNESS	0/1	6.5%	OSSE

Childhood Maltreatment. CFSA provided childhood maltreatment information regarding reported histories of abuse, neglect, or out-of-home placement. As the public child welfare agency in DC, CFSA is responsible for receiving and investigating reports of known or suspected child abuse and neglect. Referrals received by CFSA go through a screening process to determine whether the reported concerns reach the threshold for a response. If the concerns meet the threshold, CFSA opens an investigation. If the concerns do not meet the threshold, CFSA "screens out" the referral.

Opened investigations are referred to either the Investigation Unit (CPS-I) or the Family Assessment Unit (CPS-FA). Investigations are referred to CPS-I when there is an immediate or present danger. CPS-FA receives referrals in matters where there are no immediate safety concerns. The three outcomes of investigations are "substantiated," "inconclusive," or "unfounded."

A finding of substantiated means that there was convincing proof of abuse or neglect. Inconclusive means that they could not prove or disprove the report, and unfounded means that the investigation showed that the report was untrue.[74]

CFSA provided us information on all investigation referrals that were inconclusive or substantiated, as well as all referrals for Family Assessments. Based on the recommendation of CFSA, because we are interested in childhood experiences, we included inconclusive investigation findings and Family Assessments, in addition to substantiated findings, as all are indicative that a youth has experienced some level of childhood maltreatment, even if there was not sufficient evidence to meet the legal threshold for substantiation. Because using system involvement as the threshold already under identifies maltreatment experiences, we opted for the more inclusive measure.

Based on this data, we created two binary variables: one for neglect and one for abuse. We used CFSA's categorization of allegations as abuse or neglect, which is consistent with federal reporting requirements. We coded youth "1" for neglect if the referral resulted in a substantiated, inconclusive, or family assessment for neglect, and "1" for abuse if the referral resulted in a substantiated, inconclusive, or family assessment for abuse.

In addition to abuse and neglect, we included a binary variable coded "1" if CFSA documented the outcome of any referral as the youth being removed from their home due to maltreatment and "0" if there was no report of removal.

Table A.5: Descriptive Statistics – Childhood Maltreatment

	CODING	PERCENTAGE	SOURCE
REMOVED	0/1	5.9%	CFSA
CHILDHOOD ABUSE	0/1	16.2%	CFSA
CHILDHOOD NEGLECT	0/1	25.5%	CFSA

Educational Experience. We included multiple variables to examine the impact of a youths' educational experience on criminal justice system involvement: attendance, discipline, special education eligibility, and grade-level retention.

We measured student attendance as a count of both excused and unexcused absences. Although both represent missed days of school, conceptually they reflect different levels of engagement. Excused

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[74] CFSA 2010

absences are missed days for which a youth has a valid, documented reason, while unexcused absences are for undocumented or invalid reasons. To correct for outliers, we log-transformed these counts for use in our models.

We measured student discipline by counting the number of times a student was suspended as well as the number of days a youth was excluded from school for disciplinary reasons. Including both allows us to measure the individual impacts of both the number of incidents and the number of days of school missed. These variables were log-transformed for modelling purposes as well.

Table A.6: Descriptive Statistics – Educational Factors

	MINIMUM	MEAN	MAXIMUM	SOURCE
EXCUSED ABSENCES	0	6.5	109	OSSE
UNEXCUSED ABSENCES	0	16.0	170	OSSE
NUMBER OF SUSPENSIONS	0	0.4	14	OSSE
NUMBER OF DAYS EXCLUDED (IF SUSPENDED)	1	5.9	33	OSSE

We measured school performance through a binary grade retention variable. This indicates whether a youth had been grade retained in the previous school year and was in the same grade level in SY2018-19 as they were in SY2019-20. Grade retention indicates that a youth did not meet the minimum performance requirement necessary to advance. We use grade retention rather than test scores or GPA to measure performance because of variations in timing and school-specific standards and practices. In addition, grade retention allows us to identify youth who struggled the most academically. We coded this variable "1" if a youth was grade retained and "0" if promoted or not enrolled in a DC school in SY2019-2020 which may potentially under-identify the percent of students who were retained.

Table A.7: Descriptive Statistics – Grade Retention

	CODING	PERCENTAGE	SOURCE
GRADE RETAINED	0/1	13.2%	OSSE

Mental Health Diagnoses. DHCF provided Medicaid claims data for youth born in the date range of interest (January 1, 2001 through January 1, 2008) where there was a mental, behavioral, and neurodevelopmental disorder diagnosis or mental health or substance abuse treatment.[75] This claim-level data allows us to identify youth in the sample who received medical treatment for their diagnoses through Medicaid. Because this does not capture youth treated under private insurance or other non-Medicaid billing or youth with undiagnosed or treated conditions, the data likely underestimated the effects and prevalence of mental health and substance abuse disorders.

As with the previous iteration of this report, we included indicators for the following: internalizing disorders, externalizing disorders, internalizing-externalizing comorbidity, psychiatric disorders, specific learning disorders, and specific developmental motor disorders.

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[75] ICD-10-CM category codes F06 – F99.

We based our disorder indicators on ICD-10-CM diagnoses categories and codes. Since the diagnosis data included both ICD-9 and ICD-10-CM codes we cross-walked the ICD-9 codes using the CDC's FY 2016 General Equivalence Mappings.

We included three dichotomous variables to measure whether youth have disorders in the internalizing and externalizing domains. We code youth as having internalizing-externalizing comorbidity "1" if they have both internalizing and externalizing disorders or Disruptive Mood Dysregulation Disorder (DMDD); "0" if else. We code youth as being internalizing-only "1" if they only have one or more internalizing disorder and no externalizing disorders. They are coded as externalizing-only "1" if they have one or more externalizing disorder and no internalizing disorders.

The internalizing domain represent disorders with prominent anxiety, depressive, and somatic symptoms.[76] We included the following diagnosis categories as internalizing disorders: major depressive disorders (F32 and F33), persistent and unspecified mood disorders (F34 and F39) with the exception of disruptive mood dysregulation disorder (F34.81) (DMDD), phobic and other anxiety disorders (F40 and F41), obsessive-compulsive disorder (F42), reaction to severe stress and adjustment disorders (F43), dissociative and conversion disorders (F44), somatoform disorders (F45), eating disorders (F50), emotional disorders with onset specific to childhood (F93), manic episode (F30), and bipolar disorder (F31). These general categories subsume the common stress-related disorders and mood disorders subcategories consistently found to be internalizing such as generalized anxiety disorder, somatic disorders, panic disorder, separation anxiety disorder, and dysthymia. Consistent with emerging research, the internalizing disorder indicators also includes post-traumatic stress disorder.

The externalizing domain represent disorders with prominent impulsive, disruptive conduct, and substance use symptoms. We included as externalizing disorders impulse disorders (F63), attention-deficit hyperactivity disorders (F90) (ADHD), conduct disorders (F91), and substance use disorders (F10 – F19). These general categories subsume the commonly found externalizing disorder subcategories including oppositional defiant disorder and intermittent explosive disorder. Consistent with Kimonis and Frick (2015), we also include ADHD as an externalizing disorder.[77]

Internalizing-externalizing comorbidity occurs when individuals have disorders in both the internalizing and externalizing domains. We therefore coded youth with both internalizing and externalizing disorders as comorbid. We also coded youth with DMDD as comorbid as DMDD is associated with both internalizing and externalizing disorders.

We also included a dichotomous variable to measure whether a youth has a psychotic disorder, which includes schizophrenia (F20), schizotypal disorders (F21), delusional disorders (F22), brief psychotic disorders (F23), shared psychotic disorders (F25), schizoaffective disorders (F25), and other and unspecified non-organic psychotic disorders (F28 and F29). We coded youth as a "1" if they had a psychotic disorder diagnosis and "0" otherwise.

We include two dichotomous variables to measure whether a youth as a specific developmental learning disorder (F81) or whether a youth has a specific developmental motor disorders (F82). Specific learning disorders include specific reading disorder (F81.0) and mathematics disorder (F81.2). Specific motor

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[76] Achenbach et al. 2016
[77] Kimonis and Frick 2015

disorders include developmental coordination disorder, stereotypic movement disorder, and tic disorders. For each variable, we coded youth with the disorder "1" all others "0."

Individualized Education Program (IEP). We included a binary variable to measure whether a youth had an Individualized Education Program (IEP) in place during the SY2018-19. An IEP is a legal document that specifies special education accommodations for youth who qualify under the Individuals with Disabilities Education Improvement Act of 2004 (IDEA). Students can qualify for an IEP if they have mental, physical, behavioral, or emotional disabilities. Specifically, the IDEA defines a "child with a disability" as a child with "intellectual disabilities, hearing impairments (including deafness), speech or language impairments, visual impairments (including blindness), serious emotional disturbance …, orthopedic impairments, autism, traumatic brain injury, other health impairments, or specific learning disabilities." Our data do not distinguish between IEP reasons; for example, individuals with orthopedic impairments are indistinguishable from those with emotional disturbance.[78] We code all individuals with IEPs as "1" and all without IEPs "0."

Mental Health Diagnosis and IEP Interaction. Because IEPs are put into place to provide services to youth with legally defined disorders, including the disorders in this analysis, when they impair educational performance, we include interaction variables between IEP and each included diagnosis category to examine whether the effect of IEPs is conditioned on particular types of diagnoses. This allows us to begin disentangling the effect of IEPs in light of different mental health conditions.

Table A.8: Descriptive Statistics – Mental Health Diagnoses and IEP

	CODING	PERCENTAGE	SOURCE
INTERNALIZING ONLY	0/1	7.7%	DHCF
EXTERNALIZING ONLY	0/1	4.8%	DHCF
COMORBID	0/1	9.1%	DHCF
PSYCHOTIC DISORDER	0/1	3.6%	DHCF
SPECIFIC LEARNING DISORDER	0/1	9.5%	DHCF
SPECIFIC MOTOR DISORDER	0/1	3.2%	DHCF
IEP	0/1	25.4%	OSSE

Proximity to Crime. Based on a youth's residential address as obtained from OSSE records, we include a violent gun crime hot blocks variable. Previous analysis found that proximity to violent crime, in general, and property crime had no significant effect on youth criminal justice system involvement. We identified the 25 blocks with the most violent gun crime incidents and created a binary variable coded "1" if the youth's residence was on one of the blocks and "0" otherwise.

Table A.9: Descriptive Statistics – Proximity to Crime

	CODING	PERCENTAGE	SOURCE
RESIDENCE ON A HOT BLOCK	0/1	8.4%	MPD

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[78] Updated language refers to this as "Emotional Disability." However, in this report we are using the language consistent with 2018-19 standards.

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Appendix B: Multivariate Models

Model Estimation

We use STATA 16 to estimate a multi-variate logistic regression model to identify the factors that are statistically associated with involvement in the juvenile justice system. Because our stratified sample included an oversample of youth with criminal justice system involvement, we use the 'svyset' function to assign probability weights and calculate a linear variance estimator. We then use the 'margins' function to calculate estimated average marginal effects and predicted probabilities.

Model Results

Table B.1 presents the results of the logistic model where the dependent variable is criminal justice system involvement – as measured by being arrested or petitioned for one or more delinquent offenses.

Table B.1: Logistic Regression Results

		COEFFICIENT	STANDARD ERROR
DEMOGRAPHICS	**Female**	**-1.355**	**.186**
	Black	**.618**	**.378**
	Hispanic	.255	.356
	Other	.075	.448
	Age	**5.350**	**1.183**
	Age-squared	**-.172**	**.039**
ECONOMIC RESOURCES	TANF	.339	.234
	Medicaid >=365 Days	.180	.412
	Homelessness	.499	.294
CHILDHOOD MALTREATMENT	**Removed from Home**	**.844**	**.307**
	Abuse	**.554**	**.225**
	Neglect	**.421**	**.204**
EDUCATIONAL EXPERIENCE	Excused Absences (log-transformed)	-.001	.088
	Unexcused Absences (log-transformed)	**.225**	**.072**
	Suspensions (log-transformed)	**.762**	**.206**
	Days Excluded (log-transformed)	.670	.199
	Grade Retained	**.929**	**.253**
MENTAL HEALTH DIAGNOSIS AND IEP STATUS	Internalizing Only	1.019	.827
	Externalizing Only	**1.742**	**.825**
	Comorbid	**.774**	**.824**
	Psychotic Disorder	.067	.976
	Specific Learning Disorder	.323	.501
	Specific Motor Disorder	3.223	.980
	IEP	.428	.274
INTERACTIONS	Internalizing*IEP	.970	.934
	Externalizing*IEP	.971	.952
	Comorbid*IEP	-.526	.659
	Psychotic Disorder*IEP	.575	.274
	Learning Disorder*IEP	-.267	.548
	Motor Disorder*IEP	-.348	1.074
PROXIMITY TO CRIME	Gun Violence Hot Block	.508	.266
CONSTANT		**-48.498**	**9.022**
	Number of Observations	2980	
	Prob>F	.000	