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**THE YOUTH PROTECTIVE FACTORS STUDY: A STRATEGY FOR PROMOTING
SUCCESS BASED ON RISKS, STRENGTHS, AND DEVELOPMENT**

Final Research Report Submitted to The National Institute of Justice

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ABSTRACT

The Youth Protective Factors Study is an unprecedented multistate, multiyear examination of the risk-need-responsivity (RNR) and positive youth justice (PYJ) approaches, that also examined whether the effectiveness of these approaches differed by youths' age among 10 to 23 year-olds. This was a collaboration between the research labs at UMass Chan Medical and UC-Berkeley, the Council of State Governments Justice Center, and juvenile justice (JJ) agencies in three states. The project examined violent recidivism after youths' JJ involvement via two studies: 1) a retrospective study ($N = > 30,000$) to lengthen follow-up periods, and 2) a prospective study of youth referred to the JJ systems ($N = 3,380$) to obtain novel measures of protective factors and service participation. The prospective study involved unparalleled tracking of all services (risk-reduction and strengths-based services), results of risk /needs assessments and protective factors. A slight majority of these youth referred to the system were low risk (43.1%). The risk factors most strongly predictive of violent recidivism post-supervision were disruptive behaviors (e.g., aggression), family (e.g., poor supervision), negative peers, school-related behavioral problems, and attitudes supporting crime. Substance misuse was only predictive for younger youth. Protective factors most consistently protective against violent recidivism were self-control and self-efficacy, both of which had incremental validity over youths risk level. Other protective factors were strongly predictive in only the most well-powered state—prosocial engagements and social supports. School connectedness was strongly protective for younger youth. In robust, well-controlled analyses, participation in any strengths-based services increased the likelihood of violent recidivism, while risk-reduction services had no effect. However, the most common services youth received were mental health and very few services were evidence-based. More research is needed to develop guidance for effective implementation of PYJ.

THE YOUTH PROTECTIVE FACTORS STUDY: A STRATEGY FOR PROMOTING SUCCESS BASED ON RISKS, STRENGTHS, AND DEVELOPMENT

State and local juvenile justice systems experienced exciting reform for 15 years, starting in the early 2000s—with significant reductions in rates of juvenile arrest, adjudication and incarceration (Office of Juvenile Justice and Delinquency Prevention, 2016; Hockenberry & Puzzanchera, 2019; Puzzanchera & Kang, 2017). Policymakers and practitioners successfully “narrowed the net” of justice involvement by adopting evidence-based assessments, policies, and programs (JJGPPS, 2020; Wachter, 2015; Vincent et al., 2012) that recognize that youth differ from adults (National Resource Council, 2013). However, the reform effort has arrived at a critical juncture—making the next challenge to advance understanding of *reoffending* to inform improvement in risk-reducing practices. First, the de-incarceration movement has shifted the composition of the community supervision population toward more high-risk youth, resulting in recidivism rates that are higher in some cases (Fabelo et al., 2015). Second, most juvenile justice agencies do not have the capacity to utilize their data to determine the needs of their population and assess what services are--and are not--working to reduce reoffending for these youth (Deal et al., 2015; Walsh et al. 2014). Lastly, inevitable state budget cuts related to Covid-19 paired with some states recently rolling back their reforms (e.g., Louisiana, Maryland), agency resources are stretched thin and new reforms may become increasingly difficult to implement. Together, these circumstances elevate the need for agencies to carefully prioritize dollars and resources to maximize impact on reoffending.

To meet this challenge, **juvenile justice agencies need guidance from practical research on how to optimize their supervision and services to prevent reoffending.** Such optimization requires understanding of characteristics of *both* youth and services and supervision practices that differentiate rates of reoffending (Deal et al., 2015). One key set of youth

characteristics is *risk factors* (Andrews, 2006; Andrews & Dowden, 2006; Andrews & Bonta, 2010); newer research is needed to identify which factors most strongly predict reoffending as youth first enter the system (*natural reoffending*—prior to risk factors being neutralized through interventions). A second important set of youth characteristics is *protective factors* (Butts et al., 2010). With the increasing popularity of the Positive Youth Justice approach (Butts et al., 2010), research is needed to specify and validly measure protective factors, and to identify those that add value to risk factors in predicting reoffending. Finally, *youth's age* may need to be systematically considered in supervision plans. The reform mantra that kids are not simply mini-adults has generally improved juvenile justice practices (National Resource Council, 2013), but the system largely uses a ‘one size fits all’ approach across the wide span of developmental periods it serves - from early (under age 14) to older adolescence (up to age 22 in some states). Although these developmental periods have distinct behavioral and socioemotional challenges, little is known about how risk and protective factors vary by age or how age affects youths’ responsiveness to different service approaches. Beyond understanding how youth characteristics affect reoffending, juvenile justice agencies also need to better understand how alternative service approaches affect this outcome. Debates between the Risk-Need-Responsivity (RNR) model and its emphasis on risk factors (Andrews, 2006; Andrews & Bonta, 2010; Dowden & Andrews, 1999) versus the Positive Youth Justice approach (PYJ) and its emphasis on strengths, (Butts et al., 2010; Butts, 2014; Catalano et al., 2002) obscure the ability of agencies to know how to combine these approaches to achieve the greatest gains in reducing reoffending.

The overarching goal of this unprecedented multistate, multiyear study was to provide agencies with a model for measuring reoffending and evaluating services that would help them answer questions that are fundamental to their public mission. The project aimed to help

agencies **optimize their supervision practices through understanding the youth characteristics and corresponding interventions that would minimize reoffending and maximize youths' success.** To that end, we partnered with three state juvenile justice agencies to **1) improve their capacity to accurately measure reoffending and record service utilization to use data that would shape practices, 2) identify the risk and protective factors that are most predictive of reoffending at specific ages, and 3) determine which services lead to the lowest rates of reoffending.**

Project Goals and State of Current Research

Goal 1: To improve juvenile justice agencies' capacity to accurately measure reoffending—which is essential to understanding both their population's needs and their own effectiveness in addressing them. Juvenile justice agencies lack standardization in their measurement and reporting of recidivism rates (Deal et al., 2015; Walsh et al., 2014; Harris et al., 2009). According to a national survey, many states (39) report recidivism for their reentry population while only 13 states report recidivism for their community supervision population (Deal et al., 2015). Indeed, in the investigators' experiences with 50 state and local juvenile justice agencies, it is clear that most jurisdictions lack the data collection, system capacity, resources, and knowledge to measure reoffending (Walsh et al., 2014; Vincent et al., 2018).

Even among agencies that have the capacity to report reoffense rates for their community supervision population, most do not make their data actionable to shape their policy and programming decisions (Walsh et al., 2014). This higher level use of data requires integration of service utilization data into case management systems that are linked to reliable and valid assessments of risk and protective factors. Without both valid assessments and data capacity, many jurisdictions may be investing significant resources into services that fail to effectively address the risks and strengths of youth they serve in ways that matter to public safety.

Goal 2: To advance understanding of how rates of reoffending differ naturally across youth's age, risk factors, and protective factors—independent of intervention—to inform supervision practices. Studies report that less than 40% of youths' risk factor domains are met during community supervision, due to limited service availability, youth readiness, and other variables (Haqanee et al., 2014). For high-risk youth, who have myriad risk factors and few protective factors, targeting all their risk domains with services is unrealistic and, arguably unnecessary if some more strongly predict reoffending than others. Prioritizing the characteristics to target is a formidable challenge that requires guidance by research. As such, we will examine youth characteristics with promise in predicting reoffending.

Risk Factors. Today, most juvenile justice agencies use risk/needs assessments to measure well-established risk factors (JJGPPS, 2020), but surprisingly little is known about how to prioritize within these factors to best reduce reoffending for youth (Drawbridge et al., 2019; Nelson & Vincent, 2018). Decades of adult research indicates the primary risk factor areas are pro-criminal attitudes, negative associates, family circumstances, education/employment problems, substance abuse (Hawkins et al., 2000). Many juvenile agencies assume they should prioritize the dynamic risk factors from the 'Big Four' (antisocial attitudes, antisocial personality, and antisocial peers) (Andrews & Bonta, 2010), which most strongly predict reoffending among adults. However, adolescent research indicates this assumption may be incorrect. Although youth studies confirm that personality/behavior and negative associates are strong predictors, findings related to other factors are mixed (Peterson-Badali et al., 2015; Perrault et al., 2017; Thompson & McGrath, 2012).

Protective Factors. Juvenile justice agencies are increasingly embracing the Positive Youth Justice approach (Butts, 2014), which emphasizes bolstering protective factors against

reoffending. In contrast to the wealth of knowledge about risk factors and their measurement, little is known about how to operationally define and validly assess protective factors (California Department of Health Care Services, 2024). Even less is known about how to prioritize them in supervision practices or services to reduce reoffending.

To address these issues, this study embed valid self-report measures of promising protective factors into probation intake procedures. Given the early state of the literature and confusion about terminology (e.g., protective, promotive, moderating), we defined *protective factors* as variables that precede and *decrease* the likelihood of reoffending among justice-involved youth (complementing our definition of risk factors as those that precede and *increase* chances of reoffending) (Kraemer et al., 1997). To maximize utility, we emphasized protective factors that were (a) *dynamic* and theoretically could be changed through intervention; (b) more than just the absence of risk factors (e.g., bonds with prosocial friends, not just the absence of antisocial peers); and (c) theoretically associated with desistance from delinquent behavior (e.g., shifts toward prosocial identity; Bersani & Doherty, 2018). We measured prosocial identity, prosocial engagements and sense of purpose; social support; and self-control and self-efficacy (Butts, 2014; Great Britain Ministry of Justice & United Kingdom, 2013; Catalano et al., 2004).

Youths' Age. As suggested earlier, the juvenile justice reform movement was partly built on the premise that “kids are different” from adults. Given that juvenile justice spans a large developmental range (early adolescence to young adults), developmental differences remain a critical factor in prediction of reoffending and planning of interventions. Longitudinal studies and meta-analyses indicate the strongest risk factor predictors for violence among early adolescents (age 12 to 14) pertain to interpersonal relations (lack of social ties and negative peers), school (attitude and performance), aggression, and poor parental management (Hawkins et al., 2000).

As youth transition to older adolescence and young adulthood, parents no longer exert a direct supervisory role and so its relevance decreases. Romantic relationships shift and exert greater influence, as do other roles and responsibilities such as transitioning from school to employment (Laub et al., 1998). Impulsive behaviors become heightened (Cohen et al., 2016), and antisocial attitudes may become more ingrained relative to early adolescence. With respect to protective factors, early to mid-adolescence is a particularly plastic period and a key window for identity development and social-emotional learning (Crone & Dahl, 2012; Pfeifer & Berkman, 2018); thus, prosocial peer relationships and prosocial identity development may be most influential for reduction of reoffending. Alternatively, among older ages, a focus on shifts in responsibilities, such as employment motivation, prosocial engagements, and programs that enhance self-regulation, and prosocial cognitions are likely to be most influential (Jones et al., 2015).

Goal 3: To assess whether and how strengths-based services add value to risk-reduction services in predicting lower rates of reoffending. Our third goal was to generate a model for assessing what services and supervision practices resulted in the greatest gains towards reducing reoffending. Agencies need to know ‘how’ to address youths’ most influential predictors of reoffending and whether their current programming is working. This evidence would lead to smarter case planning—simply providing youth with more services is not better (Fabelo et al., 2015; Vieira et al., 2009).

Risk-Reduction Versus Strengths-Based. The disconnect between the RNR (Andrews, 2006; Andrews & Bonta, 2010) and the Positive Youth Justice (Butts, 2014) case management approaches has resulted in confusion and lack of practical guidance for service selection. Studies of RNR in juvenile justice settings indicate using evidence-based or promising risk-reduction services that address dynamic risk factors has the greatest impacts on reoffending (Peterson-

Badali et al., 2015; Vieira et al., 2009) and is cost-effective (Romani et al., 2012). Conversely, the Positive Youth Development (PYD) (Butts et al., 2010) or PYJ (Butts, 2014) philosophy involves shifting from fixing youths' deficits (risks) to building on their strengths to encourage positive behavior. Specifically, PYJ promotes the need to build youth's development of skills, confidence, and self-efficacy (learning and doing), and engagement in pro-social activities and attachment to caring adults (attaching/belonging) for all youth. PYJ indicates these assets are important for all youth and, unlike the RNR model, does not specify who needs more or less. However, much is still unknown about how to apply the PYJ approach. As Butts (Butts, 2014) acknowledged, "...researchers and practitioners must collaborate to test and refine the variety of practices..." (p. 6). Studies of aspects of this approach are few and not rigorous, but indicate strengths-based approaches improve youths skills (William et al., 2021) and reduce institutional incidents (Barton & Mackin, 2012), but thus far, there is not published evidence that the approach reduces recidivism.

We define *risk-reduction services* as evidence-based or promising practices that target risk factors (e.g., Aggression Replacement Therapy, Multi-Systemic Therapy). We define *strengths-based services* consistent with Butts (2014) and Lerner (2004) to encompass services promoting competence and skill building, prosocial engagements, and/or prosocial attachment (e.g., Big Brothers/Big Sisters, school-based interventions). The extant studies and scholarly works to date indicate that the optimal strategy may be to integrate the focus on promoting protective factors with a focus on reducing risks (Catalano et al., 2002; Catalano et al., 2004; Bradshaw et al., 2006; Frabutt et al., 2008; Sanders et al., 2017). The suggestion seems eminently sensible but instead the supervision approaches have been at odds (Butts et al., 2010; Catalano et al., 2002).

Youth's Age. Research in developmental psychology implies supervision practices may be more effective if they are tailored to youth's developmental stage. The effectiveness of risk-reduction services commonly used in juvenile justice settings is likely to be greatest for older adolescents and young adults. These services often (a) follow a cognitive-behavioral approach that older adolescents' are relatively well-prepared to benefit from (given greater metacognitive skills, perspective taking, and other relevant skills) compared to younger adolescents (Garber et al., 2016), and (b) were designed to prevent reoffending among youth who largely are middle-to-late adolescents. Conversely, strengths-based services are likely to be more effective with the early adolescents (age 14 and younger) than their older counterparts. The majority of validation and evaluation studies of strengths-based services have been in prevention and early intervention (Butts, 2014; Lerner et al., 2005). Additionally, services like peer mentoring and prosocial activities like sports, music, and arts may be particularly engaging for younger adolescents who are particularly sensitive to social-emotional learning (Crone & Dahl, 2012).

Research Questions

To address the critical research gaps, our overarching purpose was to provide juvenile justice agencies, nationally, with a model for measuring reoffending that can guide supervision policies and practices to maximize reduction of reoffending and promote youths' success. This project involved partnerships with three juvenile justice state agencies and both retrospective and prospective sampling. Using rigorous methods to advance knowledge of juvenile reoffending, we examined: (a) which youth were most at risk for reoffending, *naturally* (independent of interventions), as a product of their risk and protective factors and age, and (b) which service strategies were best positioned to reduce reoffending. The project addressed prior weaknesses in state-based examinations of reoffending (Deal et al., 2015; Walsh et al., 2014; Skeem et al.,

2017) by using rigorous methods with multiple marker events (e.g., violent vs. any new petitions), over different follow-up periods (during and after supervision), while accounting for time at-risk.

Research Question 1: Are there different rates of reoffending by specific risk factor and protective factor domains, and are the rates moderated by age? To date, most research has failed to account for the fact that agencies can use assessments to inform interventions that neutralize the relationship between youth characteristics and reoffending. It is difficult to disentangle the utility of risk and protective factors based on youth's initial risk-needs assessments from the effects of programming that youth receive along the way. This analytical fact interferes with the ability of research to provide agencies with accurate and practical evidence about how to allocate their resources. To address this limitation, we focused on recidivism that occurred after youth completed their juvenile justice involvement to control for any supervision effects. We also examined whether protective factors had incremental predictive validity for this post-supervision reoffending over risk factors.

Research Question 2: Is there value added to reducing reoffending by using one type of service strategy (i.e., strengths-based services) over another (i.e., risk-reduction services) and is the value of services moderated by age? Answering these questions required isolating the association between service types and reoffending, while controlling for differences among youth referred to those service types (e.g., risk level, severity of index offense, disposition).

In addition to these research questions, another goal of this project was to work with state partners to develop a strategy for improving juvenile justice agencies' capacity for recording youths' service data. We also provided our state partners with state-specific findings to help them develop a system improvement plan.

METHODS OVERVIEW

To achieve our goals and answer the research questions, we conducted a cross-sectional, multi-method (administrative and self-report data) study with a recidivism follow-up with three state juvenile justice agencies. Given constraints in time and resources, the project involved two studies in one: 1) a retrospective study to lengthen follow-up periods for reoffending, and 2) a prospective study to obtain measures of protective factors and service participation. This section reviews the methods common to both studies.

Selection of State Partners

The study involved partnerships with three state juvenile justice agencies responsible for youth under community supervision—Pennsylvania’s Juvenile Court Judge’s Commission, Virginia’s Department of Youth Justice, and Wisconsin’s Department of Child and Family Services. Inclusion of data from three states was essential to: 1) increase generalizability by minimizing state and organization-level effects, 2) obtain enough youth falling near the tails of the age distribution (e.g., age 14 and younger, and ages 18 to 20), and 3) obtain large samples with a normal distribution of scores on the predictor variables. The criteria for selecting the state partners were as follows: 1) conducts validated risk-needs assessments with all youth before disposition, 2) have centralized, electronic case management systems, 3) invested in adopting positive youth development approaches, and 4) can supervise youth past age 20 and/or receive a relatively high percentage of referrals for younger youth (age 14 and under).

Retrospective analyses used state-wide samples of all youth referred to the JJ system who received a risk-needs assessment from probation. For prospective analyses, the researchers worked with state agency leadership to select five counties within each state that had 1) an exceptional track record of implementation of new practices, 2) a high volume of youth referrals

and/or adjudications (for states that conducted the risk-needs assessment post-adjudication), and 3) more younger (age 14 and under) or older (age 18 and older) youth cases. The investigators limited prospective data collection to five counties due to the high time investment for county staff to administer protective factor surveys and track all services in which youth were participating, regardless of whether the services were referred by the JJ system. Moreover, the goal was for these sites to be the state pilot testers of the comprehensive service data recording and case management system modifications, and the protective factor survey. The states and counties are de-identified in all reporting of results and data in this report.

Measuring Risk

This study measured youths' risk of recidivism and risk factor domains using the risk-needs assessments implemented by the state agencies and conducted by Parole Officers (POs): the Youth Level of Service/Case Management Inventory Version 2.0 (YLS/CMI) (Hoge & Andrews, 2011) in State 1, and the Youth Assessment and Screening Inventory (YASI) (Orbis Partners, 2000) in states 2 and 3. The advantage of including more than one instrument is that they have conceptually parallel risk factor domains, and the predictive effects of risk for reoffending level will not be specific to the measure used. Both assessments are completed by trained POs, who obtain information from youth, parents, and other collateral sources—and use manualized descriptions to rate items. Both assessments were designed for use with adolescents up to age 17 or 18; however, research has indicated that youth risk instruments, including the YLS/CMI, predict recidivism up to age 22 (Vincent et al., 2019).

Youth Level of Service/Case Management Inventory Version 2.0 (YLS/CMI) (Hoge & Andrews, 2011). The YLS/CMI 2.0 is a static/dynamic, actuarial risk-needs assessment that comprises 42 risk factor items falling within eight domains. Seven of the risk domains are dynamic and include Family Circumstances, Education/Employment, Peer Relations, Substance

Use, Personality/ Behavior, Attitudes/Orientation, and Leisure/Recreation. POs rate each risk item as present or absent and then sum the respective items to generate the risk domain scores, and sum all 42 items to generate the total risk score. Total risk scores generate youths' risk level using separate cutoffs for girls versus boys based on the normative sample. Meta-analyses indicate the YLS/CMI has strong predictive validity for violent and general reoffending (Olver et al., 2009) and studies report strong inter-rater reliability in the field among POs (Hoge & Andrews, 2011). The researchers received YLS/CMI domain scores and risk levels (low, moderate, high) and the total risk score and overall risk level (low, moderate, high, very high) for all youth cases from State 1.

Youth Assessment and Screening Inventory (YASI) (Orbis Partners, 2000). The YASI is a static-dynamic, actuarial risk-needs assessment instrument designed for juvenile justice settings. It consists of a Prescreen, which quantifies risk and strengths levels, and a Full Assessment that is used for case planning by assessing multiple dynamic and static risk and strengths domains. The YASI's items and risk level algorithms vary somewhat by state. The versions used by states 2 and 3 contained 34 Prescreen items measuring static and dynamic risk/strength factors across nine domains. The Prescreen generates the overall risk level and is intended to identify youth who are higher than low risk and in need of the Full Assessment. The Full Assessment contains 90 items and is necessary for producing scores and risk levels within each of the dynamic risk domains—Family, School, Community and Peers, Alcohol and Drugs, Aggression and Violence, Attitudes, Skills, and Employment and Free time. This study did not use YASI strengths scores, which are generated for each risk domain except Alcohol and Drugs. The study also did not use the Mental Health domain, which is not a risk area but is intended to flag those who may have a mental health concern. The YASI and most of its risk domains significantly predict recidivism for

youth (Baird et al., 2013; Jones et al., 2016). Inter-rater reliability in the field has varied by site, with some reporting excellent reliability (Baird et al., 2013; Brown et al., 2012) and others finding reliability on some scales was fair to good (Skeem et al., 2012).

The YASI overall risk and domain risk scores and levels (None, Low, Moderate, or High) are generated by Orbis Partners via a proprietary algorithm. A risk level of ‘None’ indicates the youth does not have risks in that domain. The current study received only risk levels and not raw scores due to challenges with extracting raw score data from the states’ case management systems and not having the algorithm. Thus, all analyses conducted in this study used the total overall Risk Level, generated from 33 static or dynamic items, and each domain’s risk level converted into continuous scores. One important caveat is that the YASI software produces a risk level of None for several domains even if the Full Assessment was not completed. There is a variable that indicates whether the Full Assessment was completed and, if not, these domain risk levels should not be used. The researchers did not receive this variable from State 3, and therefore, had to use other methods to determine whether domain risk levels were ‘true’ risk levels (see Appendix F: State 3 Report, for an explanation).

Testing Interrater Reliability of Risk-Needs Assessments

We tested the interrater reliability of the POs’ risk-needs assessment ratings in the counties selected for inclusion in the prospective data part of this project. It was necessary to customize the approach to measuring interrater reliability by state.

YLS/CMI. State 1 already had a process of measuring and gathering YLS/CMI reliability data for its POs. Annually, a group of local YLS/CMI expert raters generate a case vignette that is disseminated to all POs to rate on the YLS/CMI. Each county probation office tracks their POs’ performance in an Excel spreadsheet indicating the number of items within each domain that the officer did not score consistent with the vignette consensus ratings. Each of the five counties

shared these spreadsheets with the researchers for the years of data gathering. The researchers coded each probation officer as having ‘acceptable’ or ‘questionable’ reliability by identifying those with few discrepancies from the vignette consensus ratings (acceptable) versus those who differed from the consensus rating on one or two items (depending on the domain) within two or more YLS/CMI domains. Among the 58.5% of POs ($N = 70$) who completed reliability testing and conducted YLS/CMIs for youth in the final prospective sample, only 7.58% had questionable reliability.

YASI. The two YASI-user states did not have procedures for on-going reliability testing with their POs. Therefore, the research team hired an expert consultant (Patrick Kennealy, PhD) to create a base set of three case vignettes with standardized item-level consensus ratings. The consultant and research team customized the vignettes and consensus ratings by state to use state-specific court language (e.g., labeling of offenses, dispositions) and to match the state’s version of the YASI. The state-specific modifications were made in consultation with local state trainers or quality assurance staff. The vignettes were completed in early March 2022.

The research team distributed vignettes to POs at the rate of one vignette per month from April to June. POs entered their YASI item ratings into a standardized sheet programmed into REDCap. After each vignette, the research team generated an aggregate feedback report for each county providing the items most commonly mis-rated and an explanation for the correct answer. We used POs’ ratings on all three vignettes to calculate their individual interrater reliability via intraclass correlation coefficients (ICCs) for each YASI domain and a total score (calculated based on a sum of all items).

PO’s had to achieve an ICC of .60 or above on the total score and all but one risk domain to be considered in the good to excellent reliability range (Shrout, 1998). In State 2, based on the

76.3% of their POs ($N = 38$) who conducted YASIs for youth in the prospective sample, only 5.3% had poor reliability. Their ICCs calculated based on the three vignettes ranged from 0 (for one or two POs on one domain) to 1.00 across YASI risk domains, and from 0.88 to 1.00 for the artificial YASI total risk score. In State 3, out of the 52.5% of POs ($N = 52$) who conducted YASIs for youth in the prospective sample, 20.9% ($n = 9$) had questionable reliability. Their ICCs ranged from 0 to 1.00 for the risk domains, and from 0.82 to 1.00 for the YASI total score.

In sum, we tested interrater reliability for just over half of the POs who completed risk-needs assessments for youth in the prospective sample (with the exception of State 2 where the proportion was much higher). Many of the POs in States 1 and 3 also would have conducted the YLS or YASI for youth in the retrospective sample. Over 90% of POs tested had good interrater reliability in States 1 and 2, and just under 80% had good interrater reliability in State 3.

Measuring Recidivism

Effective measurement of recidivism was a primary objective of this study. We defined recidivism as *new petitions or charges* received in the juvenile or adult system, excluding any that were dismissed. We did not use adjudications because the study used survival analyses to model time to the recidivism event. Those who are higher risk generally recidivate sooner than others. Adjudications add error due to delays in processing time. The researchers used rigorous methods to address limitations in many agency-generated studies of recidivism, including:

- Examining the subcategory of “violent” recidivism separately from the larger category of “any” recidivism, and counting only new delinquency offenses (excluding truancy and other status offenses, violations, etc.). *Violence* was defined as offenses that involved actual or attempted harm to a person, and included all persons offenses (e.g., robbery, assaults, specific sex offenses).

- Excluding youth who were lost at follow-up (e.g., transferred out of state or waived to the adult system) or in a placement out of the community the entire follow-up period.
- Using survival analyses to account for variability in the amount of time that each youth had an opportunity to reoffend, and any time spent in a placement out of the community.
- Controlling for differences in recidivism outcomes across counties within states that may be due to probation office-level characteristics (e.g., different policing practices) by including a cluster term.
- Isolating youths' natural reoffending pattern, without the interference of services and supervision, by examining recidivism occurring after youths' juvenile justice supervision had ended (post-supervision recidivism). We defined *supervision* broadly as the time during which youth were involved with the juvenile justice agency, from the date of their initial petition (or complaint) until their case was completely closed, including any extensions in supervision as a result of new offenses. Thus, supervision may include involvement in a diversion program, informal adjustment, probation, a secure placement or a combination of any of the above.
- For the retrospective data, we used results from the last or 'most recent' risk/needs assessment conducted for each youth (close out risk assessment) to predict post-supervision recidivism, rather than using the assessment conducted at intake. For the prospective data analyses, we used the initial risk/needs assessments because so many youth in the samples only had one assessment.

The primary recidivism outcome of interest was *violent recidivism post-supervision*. However, this study also examined *any recidivism post-supervision* (includes violent and all delinquency offenses—not status offenses) in some cases. In addition, the retrospective sample

also provides results of analyses for recidivism that occurred *during supervision* by statistically controlling for the number of days youth spent on supervision and subtracting days spent in any placement from youths' total time at-risk.

Data Analytic Methods

As a result of state-level differences in court referral and risk-needs assessment practices, and consequently, the protective factor survey administration (i.e., States 1 and 2 administered their assessment after the court referral and State 2 was after adjudication), which translated into large sample demographic differences, the researchers conducted most analyses by state rather than using samples merged across the three states. For descriptive analyses provided in this report that did include data from all the states, the YASI and YLS/CMI risk levels were combined into one low, moderate, or high (includes very high on the YLS/CMI) variable.

All analyses of service data and any analyses involving recidivism excluded youth who were lost at follow-up due to transfer to another court or other reasons. All recidivism analyses excluded youth who would have aged out of the adult system during the study follow-up period and for whom the researchers did not obtain adult recidivism records (State 3 only). All *post-supervision recidivism* analyses included only youth whose involvement with the system ended at some point prior to the end of the study's recidivism tracking period, and *during supervision* analyses included only youth who spent more than one week on supervision. This section describes the data analytic procedures for the primary research questions.

Analyses of Risk and Protective Factors' Prediction of Recidivism. The researchers used Cox proportional hazards regression models (Cox regression) for all analyses of predictors of recidivism. Cox regression is a semi-parametric survival analysis that can account for variable times at-risk by examining the proportion of cases that are surviving the time to a specific event (recidivism) based upon the values of given covariates. Time at-risk was defined as the number

of days between youths' *start date* (date of the risk assessment administration, or protective factor survey for those with no risk assessment) and first violent or any new petition (depending on the outcome of interest) for those who recidivated, minus any time spent in placement. For non-recidivators (*censored cases*), time at risk was defined as time from youth's start date to the end of the follow-up period. The hazard ratio ($\text{Exp}[B]$), the preferred index for interpretation, is the ratio of hazards between two individuals whose values on the variable of interest differ by one unit when all other covariates are held constant (Hosmer, Lemeshow, & May, 2008).

Each recidivism analysis included race/ethnicity, gender, and age at assessment (except in analyses examining age effects) as covariates, along with a cluster-term to control for differences in recidivism outcomes across counties that may be due to probation office-level characteristics (e.g., different policing practices). The researchers examined whether it would be necessary to also include a cluster term to control for probation-officer level differences by calculating intraclass correlation coefficients (ICC) to assess the proportion of variance in youths' total risk scores that were attributable to officers. Conceptually, the ICC quantifies the similarity of items (youths' risk scores) within a specific "cluster" (assessing officer; Welch & Galecki, 2007). The ICC scale ranges from 0 to 1, where a higher ICC suggests a greater variance in youths' risk scores due to differences between officers rather than the youths' own characteristics. Applying mixed effects models with age, gender, and race as covariates, officer ID as the primary predictor, and youths' risk scores as the outcome, we found the ICC to be .14 in State 1 data and .22 in State 3 data. According to Shrout's (1998) ICC categorizations, these ICC values indicate "slight" clustering of risk scores by officers in both states, albeit less so in State 1 than in State 3. Given that our analysis already accounted for potential clustering effects of sites/counties within each state, which should benefit the officer variable indirectly, we opted

not to address the slight clustering effect of officers in our analysis. Moreover, due to the high interrater reliability in State 2, we did not examine PO variability in that state.

Prospective sample analyses used hierarchical Cox regressions to examine whether protective factor domains added to the prediction of recidivism above and beyond youths' risk level alone. Moderated hierarchical Cox regressions tested whether the prediction of risk and protective factors for recidivism varied by youths' age. For these analyses, the first block included gender and race/ethnicity (covariates), and the second block added the risk or protective factor of interest and biological age at the time of the assessment (or referral). The third block added an interaction term of the risk or protective factor by age. Significant interaction terms indicated the strength of the protective or risk factor for predicting recidivism varied by age.

Risk-Reduction and Strengths-Based Services' Prediction of Recidivism. In analyzing the influence of services on recidivism with the prospective samples, our basic goal was to determine the extent to which youth who received a particular type of service (i.e., risk-reduction services or strengths-based services) were less likely to reoffend, compared to those who did not receive that type of service. In essence, the study aimed to assess whether services decreased youths' likelihood of recidivism. Given the data were observational, the study used statistical techniques in an effort to approximate random assignment of youth to services.

We applied Cox regression models combined with propensity weights (Inverse Probability of Treatment Weighting), with weights estimated via a machine learning approach called SuperLearner (Polley & Van der Laan, 2010). The primary service data analysis approach involved four steps. Using risk-reduction services as an example, these steps included:

1. **Estimating Propensity Scores:** Researchers began by using SuperLearner to estimate each youth's likelihood of receiving risk-reduction services, based on their covariates,

which included youth's risk level, number of prior offenses, current offense type, disposition, gender, and race/ethnicity, and other variables that could influence the services received. A comprehensive SuperLearner library was utilized to estimate scores.

2. **Applying IPTW:** Next, the researchers applied IPTW to transform the propensity score into a weight for each youth. The weight indicates the youths' probability of receiving any risk-reduction services, given their covariates. Weights were transformed to be inversely proportional to their assigned probability of receiving the treatment.
3. **Assessing the Positivity Assumption:** Researchers checked for violations of the positivity assumption, which states that each individual should have a non-zero probability of receiving both services and no services, given their covariates. We examined the distribution of propensity scores and weights to assess whether there were significant violations. While some violations were observed for risk-reduction services across states, the overall distribution of weights was generally acceptable.
4. **Using Weights in Cox Regression:** Finally, the researchers incorporated these weights into Cox regression models to estimate whether receiving any risk services was associated with a lower hazard of post-supervision recidivism.

This method allowed us to assess the impact of total, risk-reduction or strengths-based services on recidivism, adjusting for confounding variables and ensuring a robust evaluation of their effectiveness. To verify the findings, the researchers conducted the same analyses using a more standard, but less precise, approach of using simple regression-based weights and found the same pattern of results.

STUDY 1: RETROSPECTIVE DATA

The primary goals of the retrospective data gathering and analysis were to apply the most rigorous and accurate methods for measuring recidivism to a large sample of youth referred to the juvenile justice system with a long, post-supervision follow-up period to:

1. Identify which risk factor domains most strongly predicted violent recidivism—i.e., *new violent petitions or charges*—after juvenile justice supervision. These are offenses that involved intended or actual harm to a person (e.g., assault, robbery, certain sex offenses),
2. How the predictors of violent recidivism differed from any recidivism, and
3. Determine how the strength of these risk factor domains differed depending on youths' age. Most analyses included youths' absolute age, but where applicable, we classified youth into the following age categories:
 - early adolescents (≤ 14 years old),
 - middle adolescents (15 to 17 years old), or
 - late adolescents (≥ 18 years old).

Procedures: Sampling and Follow-up

The retrospective data came from statewide samples of youth in State 1 (spanned 67 counties) and State 3 (spanned 31 counties), which originally were selected for retrospective data gathering because they had an existing module for entering youth service data in their state case management systems. That said, the retrospective service data was quite unreliable, not comprehensive, or was only being entered by a handful of counties. Therefore, this part of the study focused only on predictive analyses for risk factors and their interaction with youths' age, in addition to other descriptive system information.

The retrospective sample comprised all youth over a three year period who:

- a) Received a new juvenile justice complaint or referral (State 1) or an adjudication for a new offense (State 3) between January 1, 2015 and December 31, 2017, meaning the youth was not already under supervision by the juvenile justice system at the time of the referral, and
- b) Who were administered an initial state risk/needs assessment. Only youth cases with an initial risk assessment were included in this part of the study.

The researchers obtained the records of new juvenile court petitions and adult charges for the retrospective sample for a minimum two-year follow-up period, up to December 31, 2019. Analyses included youth whose involvement with the system ended at some point prior to the end of the recidivism tracking period, and for whom both juvenile and adult recidivism records were obtained. This was 87% of the original sample in State 1 and 85% of the original sample in State 3. The median overall recidivism data follow-up period was comparable for both states—State 1 median = 3.42 years and State 3 median = 3.42 years. The median *post-supervision* follow-up period was over two years in each state (State 1 Md = 2.44; State 2 Md = 2.68).

Original Sample Descriptions

The state samples differed in some characteristics, likely because of differences in regional demographics, policing practices, and the timing of administration of the risk/needs assessment. In State 1, most youth receive a risk/needs assessment pre-adjudication at probation intake, which means that even youth with a ‘counsel and close’ disposition are included in the study sample. In State 3, youth are receive a risk/needs assessment later in the process, usually between adjudication and disposition. Thus, the State 1 sample is lower risk because many of these youth do not have involvement with the system past their intake; whereas the State 3 sample mostly comprises youth likely to be placed on probation or committed to the state (sent to a facility). Statistically, compared to the State 3 sample, the State 1 sample was:

- more likely to be low risk and somewhat less likely to have any prior offenses
- less likely to be Black, and
- somewhat older.

Given these differences, we report findings from the two states separately.

Table 1: State 1—Sample Demographics (N = 19,357)

	Percentage (%)	n
Sex		
Boys	73.7%	14262
Girls	26.3%	5095
Race/Ethnicity		
Non-Latinx White	53.0%	10251
Non-Latinx Black	30.2%	5849
Latinx	13.3%	2580
Other/Unknown	3.4%	667
YLS/CMI Risk Levels		
Low	59.2%	11464
Moderate	35.5%	6868
High/ Very High	5.3%	1024
Index Offense		
Violent Index Offense	31.2%	6035
Index Offense Type		
Person Offense	45%	8710
Property Offense	20%	3871
Drug Offense	20.1%	3891
Miscellaneous	14.9%	2884
Number of prior referrals	Md = 0	Range = 0-4
Age at assessment (years)	M(SD) = 15.89 (1.75)	Range = 10.08 – 21.09

Table 2: State 3—Sample Demographics (N = 12,904)

	Percentage (%)	n
Sex		
Boys	71.6%	9235
Girls	28.4%	3669
Race/Ethnicity		
Non-Latinx White	38.4%	4953
Non-Latinx Black	50.6%	6528
Latinx	6.6%	856
Other/Unknown	4.4%	567
YASI Risk Levels		
Low	48.2%	6218
Moderate	39.0%	5031
High	12.85	1655
Index Offense		
Violent Index Offense	38.7%	4999
Index Offense Type		
Person Offense	47.7%	6241
Property Offense	26.2%	3429
Drug Offense	10.3%	1346
Miscellaneous	13.2%	1726
Number of prior referrals	Md = 0	Range = 0-29
Age at assessment (years)	M(SD) = 15.67 (1.96)	Range = 7.17 – 20.00

Risk Level and Recidivism Rates

Table 3 provides the State 1 sample's risk level and recidivism rates after removing youth who were in confinement for the whole period or lost at follow-up (e.g., transferred out of state).

Table 3: State 1—Recidivism by Risk Level

State 1	Any recidivism	Violent recidivism
During Supervision (n = 19,311)		
Overall Recidivism Rate	22.8%	10.5%
Median time to first offense ^a	224 days	247 days
Recidivism by RNA Risk Level		
Low (n = 11,428)	16.1%	6.9%
Moderate (n = 6860)	31.7%	15.1%
High (n = 1023)	39.1%	19.9%
Post-Supervision (n = 16,839)		
Overall Recidivism Rate	20.9%	7.4%
Median time to first offense ^a	784 days	856 days
Recidivism by RNA Risk Level		
Low (n = 10,264)	16.5%	5.4%
Moderate (n = 5747)	27.1%	10.2%
High (n = 828)	32.4%	13.4%

^aCalculated for only youth who recidivated.

Table 4 provides the State 3 sample's risk level and recidivism rates after removing censored cases (those in confinement for the whole period, those lost at follow-up, or those who would have turned 18 during the follow-up period and were missing adult recidivism records).

Table 4: STATE 3—Recidivism by Risk Level

State 3	Any recidivism	Violent recidivism
During Supervision (n = 11,515)		
Overall Recidivism Rate	24.5%	13.1%
Median time to first offense ^a	126 days	164 days
Recidivism by RNA Risk Level		
Low (n = 5530)	11.0%	6.0%
Moderate (n= 4520)	32.3%	16.9%
High (n = 1465)	51.8%	27.9%
Post-Supervision (n = 11,041)		
Overall Recidivism Rate	37.0%	16.3%
Median time to first offense ^a	714 days	883 days
Recidivism by RNA Risk Level		
Low (n = 5372)	25.2%	10.2%
Moderate (n= 4291)	43.9%	19.7%

High (n = 1378)	61.2%	29.5%
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^aCalculated for only youth who recidivated.

The difference between the states in post-supervision recidivism rates was striking. This is to be expected because the sample in State 1 was lower risk than State 3 to begin with. However, the rates differed even among the highest risk youth. Some of the differences may be accounted for by State 3's average three-month longer post-supervision follow-up period.

Predictive Validity of Risk Levels

Because the YASI data was only provided in categorical form (i.e., YASI risk classifications rather than total scores), we could not use the gold standard approach of calculating areas under the curve (AUCs) from receiver operating characteristic curves (ROCs) to assess overall predictive utility. Instead, we focused on how well the risk groupings performed in terms of “base rate dispersion” (see Silver, Smith, & Banks, 2000), or maximal differentiation among risk categories in their likelihood of recidivism. We used youths' base rates shown in Tables 3 and 4 to compute the Silver-Banks Dispersion Index for Risk (DIFR; Silver et al., 2000). The DIFR is a weighted, composite log-odds that assesses the difference between the base rate of recidivism in the total sample (e.g., 16% for violence post-supervision) and the base rates of recidivism in each of the risk classes produced by the classification model (i.e., 6%, 17%, and 27% for low, medium, and high risk, respectively). DIFR ranges from 0 to infinity, increasing as the classification model disperses cases into subgroups whose base rates of infractions are distant from the total sample base rate and whose subgroup sample sizes are large in proportion to the total sample size.

The DIFR for the YASI Overall Risk groupings for both any type of recidivism (DIFR = 2.21) and violent recidivism (DIFR = 0.82) *during supervision* was high, particularly compared to other risk assessment tools implemented in “real world” juvenile justice settings. For

example, in Baird et al. (2013), DIFRs for tools that performed moderately well were in the 0.68-0.71 range (see also Skeem et al., 2014). This indicates strong predictive utility of YASI classifications for recidivism during supervision, particularly for any new petition. However, the DIFR for the last YASI assessments overall risk levels for both any type of recidivism (DIFR = 0.59) and violent recidivism (DIFR = 0.55) *post-supervision* was limited, indicating lower predictive value.

We calculated the DIFR for the YLS/CMI Risk Levels to be consistent with how we were reporting results in State 3. For both any type of recidivism (DIFR = 0.47) and violent recidivism (DIFR = 0.46) *during supervision*, discrimination of the risk levels was relatively low—indicating limited predictive utility. The DIFR for the last YLS/CMI assessment’s risk classifications also were very low for *post-supervision* arrests for any type of offense (DIFR=0.26), but they strongly predicted violent recidivism (DIFR = 2.19). Looking instead at YLS/CMI total risk scores, they significantly predicted recidivism *during supervision* for both any type of recidivism (AUC = .66 CI[.65, .67]) and violent recidivism (AUC = .65 CI[.64, .66]). Total scores also significantly predicted recidivism *after supervision*, though not as strongly (any –AUC = .61 CI[.60, .62]; violent—AUC = .62 CI[.61, .64]). In sum, YLS/CMI risk scores predicted all forms of recidivism, but the risk level seemed to be most discriminating for violent recidivism post-supervision.

Implications of Risk Level and Recidivism Data

It is important to note that the samples in these states are different. State 1 represents youth at the front-end of the juvenile justice system; whereas State 3 primarily included youth who had already been adjudicated and were likely facing either probation or commitment to the state, although some of these youth received a YASI early and were sent to diversion. Putting it altogether, in these state samples of youth followed for over 3 years:

- Most youth who got involved with the juvenile justice system are not at high risk of reoffending. Within both states, less than 15% of youth were classified as high risk for recidivism.
- Most high-risk youth did not recidivate violently after supervision. One-third of high-risk youth in State 3 and 13.4% of high-risk youth in State 1 committed a violent offense after supervision. The majority of these offenses did not cause serious harm, with the most common offense being a simple assault (36% of violent offenses in State 1 and 65.5% in State 3).

What Were the Most Common Risk Factors Among Youth?

In State 1, the most common YLS/CMI risk domains among youth at intake ($n = 19,357$) were:

- Leisure/Recreation (35.9%).
- Substance Abuse (19.6%), and
- Education/Employment (15.7%).

The mid-adolescence group (ages 15-17) was the most likely to score High on ‘Education/Employment’ and ‘Leisure/Recreation’ among the age groups. For the remaining risk domains, the older adolescents (≥ 18) were not appreciably different from the mid-adolescence group, but both groups were typically more likely to be high risk in various domains than the early adolescents (14 years and younger).

In State 3, less than 10% of youth scored high on any of the YASI risk domains. It is difficult to compare risk domains between the YLS/CMI and the YASI due to variability in the risk factors included within each, and the bar used to set risk level cutoffs. The prevalence of

high scores on risk domains in the initial YASI assessments ($n = 11,515$) were low across the board. However, the most common high risk domains were:

- ‘Skills’ (10.7%), which measures impulsivity and problem-solving ability, and
- Alcohol and Drugs (8.9%).

There were more age differences in the presence of risk factors on the YASI than on the YLS/CMI. Older youth (≥ 18 years) were the most likely age group to score high in most risk factor domains (except Aggression and Attitudes). Mid-adolescence youth were most likely to score high on the School domain. Early adolescents generally scored the lowest across the board.

Which Risk Factors Most Strongly Predict Recidivism Post-Supervision?

What Are The Strongest Risk Factors For Violent Recidivism?

The researchers used Cox regressions to examine the prediction of post-supervision violent recidivism by each major dynamic risk factor domain (using final assessment domain scores for the YLS/CMI and domain risk levels converted into continuous scores for the YASI). As described on page 23, each analysis controlled for youths’ age at assessment, sex, race/ethnicity, and a cluster term to account for probable clustered structure of recidivism outcomes within each county.

Examination of each individual risk domain’s prediction of *violent reoffending post-supervision*, showed, as we would expect, most risk domains were predictive. There was considerable overlap in the prediction across risk domains when considering the range of error.

In State 1, regressions between each YLS/CMI risk domain and *violent recidivism post-supervision* indicated most risk domains were significantly predictive, but some mattered less:

- Personality traits and behavioral problems (HR=1.52 CI[1.44, 1.61], e.g., anger, attentional issues, impulsivity, and lack of remorse) were strongly predictive of violence. Other strong predictors were family-related problems (HR=1.40 CI[1.30, 1.52]), negative peer influences

(HR=1.40 CI[1.33, 1.48]), behavioral problems in school (HR=1.41 CI[1.29, 1.53]), and attitudes condoning crime and resisting help (HR=1.36 CI[1.29, 1.44]).

- Weaker predictors of violent recidivism were poor use of leisure time (HR=1.31 CI[1.22, 1.42]) and substance abuse (HR=1.20 CI[1.13, 1.26]).

In State 3, regressions examining the prediction of each YASI risk domain also showed nearly all domains were significantly and strongly predictive:

- Strong predictors of violence included family-related problems (HR=1.55 CI[1.46, 1.64]), Skills (HR=1.54 CI[1.43, 1.65]; measures impulsivity and problem-solving ability), attitudes towards authority/accepting responsibility (HR=1.53 CI[1.45, 1.61]), employment and use of free time (HR = 1.48 CI[1.37, 1.60]), aggression (HR=1.45 CI[1.39, 1.53]), negative peer influences (HR=1.41 CI[1.34, 1.49]) and behavioral and academic issues at school (HR=1.38 CI[1.27, 1.50]).
- The Alcohol and Drug domain was the weakest predictor of violence (HR=1.29 CI[1.22, 1.36]).

Do the Strongest Risk Factors Differ for Less Serious Recidivism?

Conducting the same survival analyses for *any form of recidivism post-supervision* rather than violence alone, we found that the most important risk factors did differ somewhat. In State 3, most risk domains were roughly equivalent predictors of recidivism. The exceptions were that the Alcohol and Drug domain was more predictive of any recidivism (HR = 1.36 CI[1.31, 1.42]) than it was for violence, and the prediction of attitudes, and aggression got weaker. In State 1, most risk domains had similar strength in predicting any recidivism as they did for violence alone. The exceptions were Personality/Behavior, which was more weakly associated with any

recidivism (HR = 1.36 CI[1.30, 1.43]) than violence, and Substance Abuse became a stronger predictor of any recidivism (HR = 1.32 CI[1.28, 1.37]) than it was for violent recidivism.

Implications About Risk Factors and Recidivism

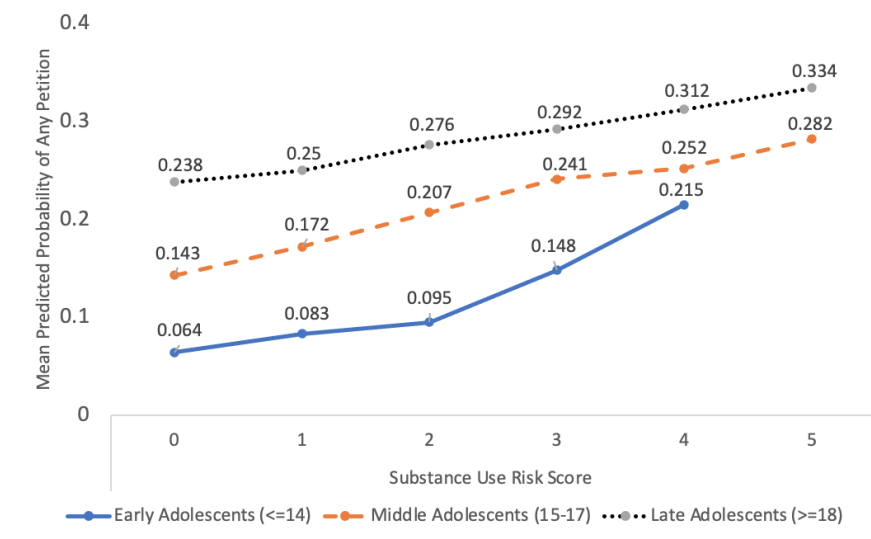
- The strongest dynamic predictors of violent recidivism after youth complete their supervision with the juvenile justice system were similar in both states regardless of the differences in recidivism rates and the risk/needs assessment conducted. The strongest predictors were generally family-related problems (e.g., poor parental supervision, strained relationship with youth); personality traits and aggression; negative attitudes towards authority and crime; and negative peer influences.
- The extent to which school and employment-related problems and poor use of leisure time were tied to recidivism differed depending on the risk/needs assessment. The YASI and YLS/CMI measure these risk domains differently. This makes it difficult for risk-needs assessment findings to guide case management practices broadly.
- Substance misuse was consistently the weakest predictor of violence in both states. It appeared to be more strongly predictive of any form of reoffending than violence alone.
- In both states, the risk factors that were most common among youth coming into the juvenile justice system were not the risk factors most likely to predict violence after supervision.

Does the Predictive Utility of Risk Factors Depend on Youths' Age?

Results revealed very few interactions between a given risk domain and age in predicting youth's recidivism. The one important exception was substance misuse. In both states, substance misuse predicted *any recidivism* and *violent recidivism post-supervision* more strongly for younger than for older youth (see Figure 1). This is consistent with the premise that substance misuse is a bigger red flag for reoffending among relatively young youth in the system, where it

is less common. The YLS/CMI also showed a similar age moderation effect with respect to negative peer influences and attitudes condoning crime—both domains were stronger predictors of *any and violent recidivism post-supervision* for younger than for older youth.

Figure 1: Substance Use Risk Scores and Post-Supervision Petition Probability by Age Group (State 1)



Implications of Retrospective Data Findings

- Most youth are not recidivating after juvenile justice involvement, including those who receive only an intake and no other interference.
- Within the dynamic risk domains, the classic Big Four (negative peers, personality, pro-crime attitudes) plus family circumstances and school-related issues were all relatively strong predictors of *violent recidivism post-supervision*, regardless of the risk/needs assessment instrument used. The biggest difference between this youth study and prior studies of adults were that parental supervision, the parent-youth relationship, and school behavior matter.
- Substance misuse and its relation to one's prior offending (as is consistent with the manner in which alcohol and drug use are assessed in a risk instrument) is a stronger predictor of any type of reoffending than violent reoffending specifically.

- Substance misuse is a more meaningful predictor of violent reoffending for younger than for older youth. This is a critical point for systems that routinely include drug testing in probation conditions.

The specific risk/needs assessment instrument matters with respect to treatment planning. There are some clear differences between the YASI and the YLS/CMI in the way risk domains pertaining to leisure time, employment and school are conceptualized and measured. For example, the Education/Employment domain in the YLS/CMI emphasizes behavioral problems and truancy, whereas the YASI has many more items related to academic performance and commitment to school. These differences affect how well risk assessment and recidivism research will practically generalize to one's state and case management decisions.

Study 2: PROSPECTIVE SAMPLE DATA

Prospective Data Method Overview

Sampling Procedures. The researchers gathered the prospective sample after working with the 15 study counties to implement a) a self-report protective factor survey to be completed by youth at the same time youth completed the state risk/needs assessment with a probation officer, and b) upgrades to their case management systems to record more robust service data. For most counties in States 1 and 2, as per their risk assessment policy, administration of the protective factor survey was to be at the time of the youth referral (probation intake) for a delinquency offense or, for State 2 only, a status offense that was likely to be adjudicated. In State 3 and two counties in State 1, administration of the risk-needs assessment, and thus, the protective factor survey was post-adjudication/pre-disposition. The full prospective sample accumulated over a 14-month period from July 2021 and August 2022. The final sample included all youth with new referrals (excludes youth with new offenses who were already under juvenile justice supervision) who would have been eligible for the risk-needs assessment and protective factor survey per the state's and/or county's policy, regardless of whether they actually completed either the assessment or survey. We defined each youths' *start date* into the study as the date of their initial risk/needs assessment, the date of their protective factor survey in the absence of a risk/needs assessment, or their date of referral/adjudication if neither the survey or assessment were completed.

Follow-up Procedures and Recidivism. The study obtained service and placement data for all youths in the sample over a minimum 12-month follow-up period from the time of their referral (between August 2023 to November 2023, depending on the state). For most youth, the study tracked their services and placements up to the end of their juvenile justice supervision.

The length of time youth spent on supervision (which includes any time spent in post-disposition out-of-home placements) ranged from 0 to 1,259 days, with an average 297.29 (SD=203.10) days. The study obtained juvenile and adult offense records for a minimum 15-months from the start date of the last youth referral, ending January 31, 2024. The median recidivism follow-up period from youths' start dates was 21 months (632.82 days). The rates of post-supervision *violent recidivism* were generally low, ranging from 6.1% (State 1) to 14.8% (State 3), and *any recidivism* post-supervision ranged from 14.7% (State 1) to 25% (State 3).

Protective Factor Survey and Its Administration

This study defined *protective factors* as variables that precede and *decrease* the likelihood of reoffending among justice-involved youth, that were more than just the mere absence of a risk factor, and that were theoretically associated with desistance from delinquent behavior. The investigators constructed a protective factor survey that captured four protective factor areas. Juvenile probation offices implemented the survey as part of their routine practice. Prior to implementation, the researchers provided a 2-hour virtual training to all POs about the importance and meaning of protective factors, how to use these factors in their case planning (based on what the field knew about the influence of these factors at the time), and how to administer the survey. There were several options for how to administer the survey. First, because many probation offices were still not performing youth intakes in-person in 2021 due to social distancing requirements from the COVID-19 pandemic, the researchers programmed the survey into RedCap so it could be administered electronically by sending a link to youths' email or via a text to their phones. The research team programmed the system such that each survey link auto-populated the youths' juvenile case number into the survey. As such, their identity was unknown to the researchers and also could be linked to their other essential juvenile case data.

Additionally, there was an option to complete the survey on paper for youth meeting the PO in-person. In these cases, POs input the youths' responses and juvenile case number into RedCap.

The original protective factor survey included 11 questionnaires used in prior youth studies, many of which were not used previously with youth justice populations. The investigators randomly added five questions for attention checks. The PI reviewed the survey with two youth advisory boards for clarity of language, and tested it with seven adolescents and young adults with lived experience to gauge the time involved, which resulted in a maximum 17 minutes. After the first several months of administering the survey (approximately 200 youth had completed it), many POs reported it was taking youth too long to complete and was requiring the PO to explain too many of the questions. The investigators re-evaluated the survey and made more modifications by simplifying language and eliminating two questionnaires.

The final protective factor survey contained nine self-report questionnaires that assessed four promising protective areas for reducing recidivism:

1. **Prosocial identity** - Assesses the extent to which 20 moral and prosocial traits (i.e., generous, respectful, truthful) describe the type of person the youth really 'wants to be' (Moral Ideal Self scale, MISS; Hardy et al., 2014), and how central a set of moral traits are to one's personal identity (e.g., "being... is an important part of who I am."; Moral Internalization Scale, MIS; Aquino & Reed, 2002).
2. **Prosocial engagement** - Assesses whether a young person feels bonded to school, has a sense of purposeful life goals and/or career pursuits, and is engaged in various community activities, respectfully. There were four measures: School Connectedness Scale (SCS: Furlong et al., 2011), the Adolescent Purpose Measure (MAP; Summers & Falco, 2020), and the Youth Inventory of Involvement and Social Responsibility Scales (IOI and YSRS;

Pancer et al., 2007), which assesses attitudes about young people's social responsibilities (e.g., volunteering, caring about politics).

3. **Social support** – Assesses specifically peer-support and caregiver-support. These were assessed with two clusters of the Child and Youth Resilience Measure (CYRM; Liebenberg et al., 2012).
4. **Self-control and efficacy**- This domain included two measures. The Brief Self-Control questionnaire (BSC; Tangney et al., 2018) measures youths' ability to control their emotional and behavioral impulses. The General Self- Efficacy scale (GSE; Schwarzer & Jerusalem 1992) assesses youths' belief in their own ability to handle life's difficulties.

Protective Factor Survey Quality Assurance Process. This study followed a rigorous quality assurance process to check that all eligible youth were receiving protective factor surveys from POs. A designated party in each state agency's research unit extracted protective factor survey data from RedCap and data on all new youth referrals from the case management system (e.g., juvenile case numbers, offense, referral date, petition date, intake decision) for the Project Director quarterly. A designated party in each county also maintained and shared a list of reasons for youth not completing the survey by juvenile case number (e.g., youth refused). The Project Director matched data to identify youth missing surveys and reviewed the lists with each county to determine why the survey was not completed and whether the youth was still in contact with the office and could be administered the survey (or complete the survey) at the next opportunity. Due to the high volume of missing surveys, the probation offices were given until January 2023 to attempt to get surveys completed by youth referred during the sample collection window who were still involved with the office.

Building Service Data Capacity

We employed a comprehensive definition of *services* as it was essential to track strengths-based services and to isolate and pinpoint services that were having the largest influence on recidivism. The investigators defined a *service* as any activity, program, or intervention that was rehabilitation or treatment-oriented. This included services that were self-referred or initiated prior to juvenile justice involvement that continued (e.g., mental health counseling, football team), interventions provided from another system (e.g., school, child welfare), and services received in a juvenile justice out-of-home placement. Services did not include court or probation responses such as electronic monitoring, community service, screening or assessment, and drug testing (see Appendix B for Service Data Parameters). The project involved several steps with each state agency and participating county to build the infrastructure for comprehensive data entry, including:

- Meetings with state workgroups to identify necessary modifications to their case management systems to capture the essential data elements, which included: Service type (e.g., education, behavior related), service provider, actual service start date (as opposed to referral), service end date, dosage (frequency of the service), completion status (successful, terminated, etc) and reasons for unsuccessful completion.
- Implementation of questions for youth and families at intake to record services in which they were already participating (e.g., mental health counseling, school tutoring).
- Implementation of a process for obtaining routine reports from out-of-home placement providers regarding services received and completed.
- Virtual training of all POs regarding what constitutes a service, how to obtain information about services and enter services into their system, and how to update service data. The

training included a catalog of each states' services by service type (e.g., attitude-related, education, mental health) to promote consistency in entering service type information.

- For the one state that did not have the capacity to record service data in its case management system, the research team collaborated with the participating counties to create a service database in RedCap that they used throughout the project.

Result of New Service Data Process. To quantify the increase in service data recording as a result of these service data building capacity steps, the researchers used the retrospective data from the five participating counties in States 1 and 3 to compare to prospective data gathered after upgrading their system and staff training. Table 5 shows the difference in the number of services entered over a two year period before (September 2017 to December 2019) and after (January 2021 to May 2023) the data capacity building steps. As illustrated in Table 5, both states had a dramatic increase in the number of services entered per youth (e.g., from 0.3 to 2.84 services per youth referrals in State 1). This increase was entirely due to more robust data entry rather than any major change in service delivery. Moreover, the data systems recorded few to no strengths-based services prior to implementing the prospective data methods of this project, and there were considerable increases in service data entry in the other service categories.

Table 5: Increase in Service Data Recording Before and After Capacity Building

	State 1		State 3	
	Before	After	Before	After
# of Services Entered	1,638	5,705	1,652	1,072
Ratio of Services to Youth	0.30	2.84	0.40	1.31
% of Services Entered				
Strengths-Based	0.8%	25.6%	0%	9.8%
Risk-Reduction	15.6%	73.1%	14.8%	43.2%
Responsivity-Related	17.8%	56.7%	15.8%	33.9%

Service Data Collection and Coding

This study tracked services received by the prospective youth sample from July 2021 (when the protective factor survey was implemented) to January 2024. For most youth, this time period went to the end of their supervision. The investigators developed a robust coding scheme for categorizing services, and the research team implemented a rigorous data quality assurance process with every participating state and county.

Service Data Quality Assurance Process. The research team conducted quarterly quality assurance meetings with a designated contact in each county throughout the project. Each quarter, a designated party from the state research units extracted and shared service data by juvenile case number. The research team conducted comprehensive quality assurance checks to identify missing or inaccurate data, cases that may have been missing service completion information, and cases that were sent to placements but missing placement-related services. The researchers also merged service data with all the youth cases in the state samples to identify those for whom we did not receive any service data to verify that they truly did not receive services versus whether the counties just did not record the information. The researchers met with the counties quarterly and sent lists of necessary data corrections to each PO who then corrected the data in their case management system.

Use of Experts to Categorize Services. This project operationalized three categories of services and categorized all service data accordingly. The categories were risk-reduction, strengths-based, and responsivity-related. There is admittedly some overlap within these categories and lack of consensus in the field as to how to best conceptualize them. For example, social skills training is specifically mentioned in the PYJ model as a strengths service that builds competencies, but could also be considered a risk-reduction service in that it addresses the negative peer associates risk domain.

To reconcile these differences and accurately categorize services into our buckets, the investigators enlisted the assistance of three experts in the field, including (1) an expert in risk reduction services and developer of an evaluation system for these services—Mark Lipsey, PhD, Peabody Research Institute at Vanderbilt University; (2) the developer of Positive Youth Justice—Jeffrey Butts, PhD, Research and Evaluation Center, John Jay College, and (3) Pamela Buckley, PhD, Institute of Behavioral Science, University of Colorado Boulder and associate of the Blueprints for Healthy Youth Development. The investigators sent each expert a list of 72 services with brief descriptions and instructions (see Appendix B) to rate each service as either ‘not a service’ or on a scale of 1 ‘risk-reduction’ to 4 ‘strengths-based’, and to indicate whether the service was a specific responsivity service. Any services that did not have consensus across the three experts were discussed by the three investigators to determine the best categorization. The operational definitions of each category were as follows:

- *Risk-reduction* – Services that explicitly target changeable risk factors for re-offending, like pro-criminal attitudes, substance misuse, negative peers, family supervision problems, or school behavioral problems. The focus is on reducing or treating risk factors to prevent recidivism (e.g., cognitive behavioral therapy, drug and alcohol treatment).
- *Strengths-based services* – Services that explicitly target the development of competencies, skills, prosocial activities, and other protective factors to generate positive outcomes. The outcomes focus is not necessarily restricted to desistance from offending, but also includes broader adolescent development and attaining a prosocial, healthy adulthood. The general focus is: 1) learning/doing (building new skills, responsibilities, and self-efficacy) and 2) attaching/belonging (getting into prosocial groups, serving others, being part of a

community). Examples include educational/vocational improvement, restorative justice targeted at mediation and relationship building.

- *Responsivity-Related* - Services that provide treatment in a style and mode that is responsive to the individual's learning style and ability and could facilitate the effectiveness of other services. These services may address non-criminogenic needs that are barriers to one's ability to participate in other services (e.g., mental health treatment, building self-esteem).

Calculating Service Dosage Units. The primary measure of quantity of services received for most analyses in this study was service dosage units. Because the states' service dosage data entered by POs proved to be unreliable, we could not base dosage on the actual frequency with which youth attended services. Instead, we based dosage on the duration of each service (service end date minus service start date). For post-supervision recidivism analyses, we calculated dosage 'units' based on the number of days spent in each service during the youths' supervision for each service category (risk-reduction, etc), regardless of whether services were overlapping in time. In other words, if youth were enrolled in two services within the same category at the same time for 20 days each, this would equal 40 days in a service. We weighted intensive services X 2. An *intensive service* included any evidence-based program, services known to be received at least once per week, and all services received within out-of-home placements. For services missing end dates but known to be completed because the youth was no longer under supervision, we estimated the service duration based on the average length of the particular service when received by other youth in the sample.

For ease in interpretation, we also calculated the *dosage units of services received per month of supervision*. We created dosage units per month by dividing the number of days a youth spent in services by the months youth spent on supervision. For youth who spent less than one

month on supervision, their months on supervision variable would have been a decimal, so we calculated their month dosage units by first dividing their time spent in service by time on supervision and then dividing this number by 30.

Prospective Sample: Descriptive Data

Prospective Data Sample

Our full prospective sample of youth, which were all youth eligible for a risk-needs assessment as per each state's policy (either at probation intake or post-adjudication/pre-disposition), consisted of 3,380 youth cases. For most analyses, 76 youth were excluded because they were lost at follow-up (e.g., transferred to another county or state, transfer to the adult system, deceased) or the state did not have the adult recidivism records and the youth aged out of the youth system within 220 days of the study follow-up (the average time of most cases' first recidivism event). These 76 cases were retained in the descriptives for the protective factor survey if one was completed. Most of the 3,380 youth had a completed risk-needs assessment. Those missing an assessment tended to be youth automatically diverted or transferred before an assessment was completed. Far fewer youth completed the protective factor survey. The numbers were as follows:

- 1,832 (54.2%) had both a risk-needs assessment and protective factor survey,
- 1,254 (37.1%) had a risk-needs assessment only,
- 129 (3.8%) had a protective factor survey only,
- 165 (4.9%) had neither a risk-needs assessment or protective factor survey. For these cases, their court referral or petition date was used as their start date.

Table 6 provides the youths' characteristics and dispositions. Slightly under half of the youth were Black, and the average age was 15.60 years. A significant portion of the youth were low risk (43.1%) and most had not had a prior record of referrals to juvenile court. However, almost half were referred for a violent index offense, which means they committed a person's offense but the majority of these were minor (e.g., simple assaults). As shown in this table, 1,812 (53.61%) youth received no or only minor sanctions (e.g., counseled and released) or were handled informally (e.g., diversion, informal adjustment, deferred prosecution). The length of time the sample spent on supervision, which includes time in secure or non-secure out-of-home placements post-disposition (excluding pre-trial detention) ranged from 0 to 1,259 days with an average of $M = 297.29$ ($SD = 203.10$) days. Only 25% of the youth spent any time in a juvenile justice placement (e.g., detention, group home, residential, correctional).

Table 6: Prospective Sample Characteristics and Dispositions (N = 3,380)

	<i>n</i>	Percentage (%)
Sex		
Boys	2439	72.2%
Girls	932	27.6%
Missing	9	.3%
Race/Ethnicity		
Non-Latinx White	1278	37.8%
Non-Latinx Black	1449	42.9%
Latinx	430	12.7%
Other/Unknown	223	6.6%
Combined YASI/YLS Risk Level (n = 3,085)		
Low	1457	43.1%
Moderate	1253	37.1%
High/Very High	375	11.1%
Missing	295	8.7%

Age Categories		
14 and Under	1134	33.6%
15 to 17	2060	60.9%
18 and Older	186	5.5%
Disposition		
No/ Minor Sanction	627	18.6%
Diversion/Informal	1185	35.1%
Community Supervision (e.g., probation, consent decree)	1330	39.3%
Placement/Commitment	124	3.7%
Missing/Pending	114	3.4%
Any Time in an Out-of-Home Placement^a	855	25.3%
Offenses		
Violent Index Offense	1491	44.1%
Any prior violent offense	278	8.2%
No prior referrals	2732	80.8%
Number of prior referrals	M(SD) = .44 (1.49)	Range = 0 –38
Age at Start Date (years)^b	M(SD) = 15.60 (1.76)	Range = 9.20 – 20.88
Social Deprivation Index (SDI)^c	M(SD) = 49.37 (29.87)	Range = 1 -100

^a Out-of-home placements include only non-secure or secure juvenile justice placements, not foster care or kinship placements.

^b Age was calculated at youths' start date—the date of the initial YASI or protective factor survey, whichever came first, or the date of the referral for those who did not receive either.

^c Social Deprivation Index (SDI) is composite measure of area level deprivation and a proxy for socio-economic status. Scores can range from 1 to 100 with higher scores indicating greater deprivation.

What Were the Most Common Risk Factors Among Youth?

As shown in Table 7, there was little consistency in the risk factors that were most common to the youth prospective samples in each state, even between the states that used the same risk/needs assessment. The only exception was Skills, which captures decision-making and problem-solving abilities, possibly related to impulsivity.

Table 7: Most Common Risk Factors by State

State 1 (<i>n</i> = 1805) YLS/CMI	State 2 (<i>n</i> = 173) w/YASI Full Assessment ^a	State 3 (<i>n</i> = 332) w/YASI Full Assessment ^a
Leisure/ Recreation (40.4%)	Skills (34.7%)	Skills (22.9%)
Substance Abuse (19.6%)	Attitudes (22%)	Aggression & Violence (18.4%)
Education/Employ (19.3%)	Family (18.5%)	Community & Peers (14.5%)

Note: ^a The denominator was the number of youth with a YASI full assessment. Thus, the percentages do not represent the percent of the whole sample

Protective Factor Survey Sample

A total of 1961 youth (58% of the 3,380 sample) completed the protective factor survey.

The reasons for missing surveys for the other 1,419 youth were as follows:

- 32.4% (*n* = 1,096) did not have survey administered by the PO for various reasons (e.g., youth was diverted or put in detention immediately before or after their intake, PO did not send the survey link, PO did not have time to administer or the youth was rushed),
- 8.0% (*n* = 271) declined to complete the survey, and
- only 1.5% (*n* = 52) could not complete the survey due to limited comprehension (e.g., cognitive disabilities, mental health concerns, too young) or language barriers.

To determine whether the 1,961 protective factor survey sample was representative of our whole prospective sample, we compared those missing surveys to the rest of the group. There was not a significant difference with respect to sex (χ^2 [1, *N* = 3371] = .26, *p* = .61) or age (χ^2 [2, *N* = 3380] = .10, *p* = .95). However, there were significant race/ethnicity (χ^2 [2, *N* = 3,157] = 11.71, *p* = .003) and risk level (χ^2 [2, *N* = 3,085] = 17.00, *p* < .001) differences. A greater proportion of Non-Latinx Black youth referrals completed the PF survey (61.6% completed, 38.4% did not complete) than Non-Latinx White (55.2% completed, 44.8% did not complete) and Latinx youth referrals (57.2% completed, 42.8% did not complete). Additionally, a greater

proportion of high/very high risk (60.0%) and moderate risk (63.4%) youth referrals than low-risk youth referrals (55.7%) completed the survey.

Most protective factor surveys were valid. The researchers excluded only $n = 43$ invalid cases; 32 because youth failed more than three of the five attention check items and 21 because the full survey was missing $> 20\%$ of items. The final protective factor survey dataset included 1908 youth (56.4% of the original 3,380) who may somewhat underrepresent White and low-risk youth justice referrals. However, the final sample covered the full age range and few youth refused (8%) or were unable to complete (1.5%) the survey. Appendix C provides the characteristics of the final protective factor survey sample.

What Protective Factors Were Most and Least Common?

Table 8 provides the possible range of scores on each of the nine protective factor scales, along with the average and range of scores for the protective factor sample.

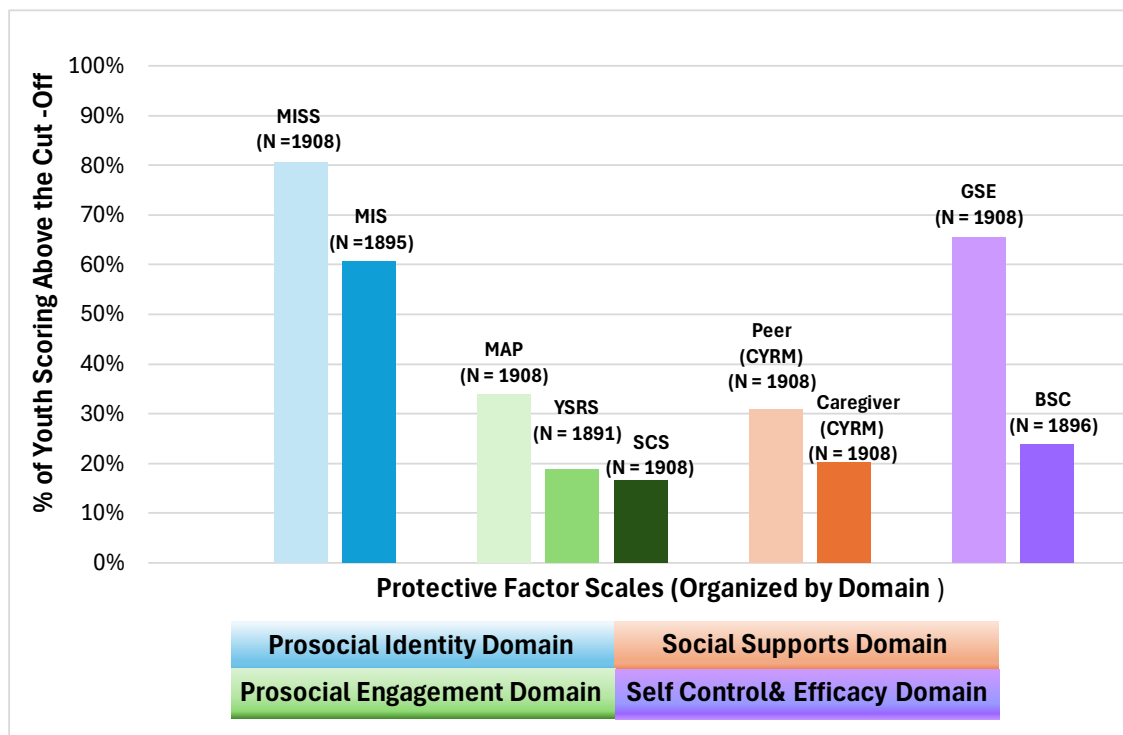
Table 8: Protective Factor Scale Possible Range of Scores & Sample Scores (n = 1,908)

	Possible Range	M(SD)	Range in sample
Prosocial Identity			
Moral Ideal Self scale	1-7	5.9(0.9)	1-7
Moral Internalization Scale ^a	5-25	19.6(3.7)	5-25
Prosocial Engagement			
School Connectedness Scale	5-25	17.1(4.5)	5-25
Adolescent Purpose Measure	10-50	38.6 (6.5)	10-50
Youth Social Responsibility Scale	-40-40	17.5(11.0)	-28-40
Inventory of Involvement	0-4	1.2(0.8)	0-4
Social Supports			
Caregiver Subscale CYRM	7-35	28.7(5.5)	7-35
Peer Subscale CYRM	2-10	7.8(2.2)	2-10

Self-Control & Self-Efficacy			
General Self Efficacy Scale	10-40	29.9(4.7)	10-40
Brief Self Control Scale ^b	---	2.78 (0.002)	-2.99-2.78

Note. ^a Analyses of the Moral Internalization Scale used a different calculation than the sum of items presented here ^bThe researchers converted this measure to z-scores due to scale items missing from the first 200+ administrations of the BSC.

Figure 2: Percent Scoring High in Each Protective Factor Scale by Area (n = 1891 to 1908)



Note. The n's varied on the different protective factor scales due to too many missing items on some scales for scores to be calculated.

The protective factor scales do not have prescribed cutoff scores to distinguish high from low scorers. In the interest of gauging whether this youth justice sample was scoring relatively high or low in protective factors, we used ROCs to identify and assign cutoffs to each scale based on the score that best discriminated youths with 15% or lower post-supervision recidivism from those with higher rates of recidivism. Figure 2 provides the percentage of cases falling

above these cutoffs on each scale according to the four protective factor areas. The Youth Inventory of Involvement scale is not represented because it was not predictive of recidivism.

Did Protective Factors Differ By Age?

After controlling for race/ethnicity and sex, older youth (age 18 and older) were significantly more likely to score above the researcher-generated cutoffs on all measures (e.g., MISS - $\chi^2 [2] = 22.47, p < .001$) than their younger counterparts. The only exceptions were on the School Connectedness Scale and the caregiver support cluster of the Child and Youth Resilience Measure.

Summary of Presence of Protective Factors

In sum, across all three states, prosocial identity and self-efficacy were the most common protective factors among youth referred to the juvenile justice system. This indicates that most youth referred to the system viewed and valued their ideal future self as prosocial (e.g., generous, respectful, truthful) and were confident in their ability to overcome difficult situations. In contrast, 30% or less of surveyed youth scored high in protective factor domains that included prosocial engagements (e.g., a sense that youth have community responsibilities), social support from caregivers, and self-control, emphasizing the dearth of resources available to most youth to help them transition to a safe and healthy adulthood (see Table 9).

Table 9: Most and Least Common Protective Factors Within Domains Among Surveyed Youth

Most Common Protective Factors	Least Common Protective Factors
Prosocial Identity: Moral Ideal Self Scale: 80.7%	Prosocial Engagement: School Connectedness Scale: 16.5%
General Self-Efficacy: 65.5%	Prosocial Engagement: Youth Social Responsibility Scale: 18.7%
Prosocial Identity: Moral Internalization Scale: 60.8%	Social Supports: Caregiver Support Scale: 20.3%
	Self-Control: 24%

What and How Much Services Were Youth Receiving?

The final sample of youth with service data, excluding censored cases and 10 cases missing service data, was $n = 3,294$. This included 1,110 (33.9%) youth for whom the researchers confirmed did not receive any services. Youth who did not receive services generally did not receive any real supervision or completed only court-ordered conditions that were not considered services (e.g., community service). Relative to youth who participated in some services, youth who did not have any services were significantly more likely to 1) receive a disposition of ‘no or only minor sanctions’ (e.g., counseled and closed) or were diverted/handled informally (e.g., informal adjustment) ($\chi^2 [3] = 402.06, p < .001$), 2) be low risk ($\chi^2 [2] p < .001$), and 3) identify as Non-Latinx White ($\chi^2 [2] = 14.67 p < .01$). There were no significant differences by sex or age between those who did or did not receive services.

Among the 2,182 youth who participated in some services, the number of services in which any single youth participated ranged from 1-37, with a median of two services. Within the service categories, 61.7% received at least one risk-reduction service, 49.5% received at least one strengths-based service, and 46.3% received at least one responsivity-related service. The median time spent in services was 44.01 dosage units per month of supervision¹, which includes services received in out-of-home placements. Within our service categories, dosage units received per month of supervision were highest for responsivity-related services:

- Risk-reduction – Md = 4.89
- Strengths-based – Md = .05, and
- Responsivity-related – Md = 24.89.

¹ Note 44.01 might be interpreted as > 1 service per day; however, these are ‘units’. Any intensive services received were weighted by multiplying their duration by 2. So an average of 44.01 units per month does not technically translate to an average of > 1 service per day.

The five most common services received by youth in the sample were: mental health counseling (includes individual, group, partial hospitalization) (30.5%), victim empathy training (18.1%), work placement (17.7%), EPICS curriculum (16.9%), and drug and alcohol counseling (individual, group, and intensive outpatient) (12.4%). The three most common services in which youth participated within each service category were:

- **Risk-reduction services:**
 - Victim awareness empathy training (18.1%)
 - EPICS curriculum (16.9%)
 - Drug & alcohol counseling (12.4%)
- **Strengths-based services:**
 - Work placement services (17.8%)
 - Mentoring programs (6.2%)
 - Structured leisure recreational activities (e.g., school basketball or football) (6.4%).
- **Responsivity-related services:**
 - Mental health counseling (30.5%)
 - Medication management (6.6%)
 - Case management (6.9%).

Was Service Participation Consistent With the Risk Principle?

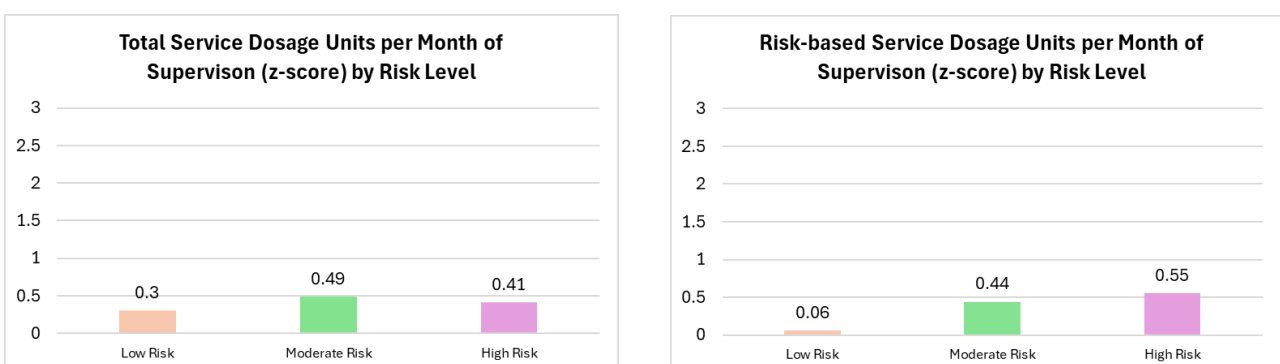
To examine differences in dosage units per month by risk level, we standardized the dosage units (using Z-scores) to correct the skewness and conducted ANCOVAs to control for statistically significant covariates (gender, age, and days under supervision). The averages reported here are the marginal mean z-scores. As illustrated in Figure 3, overall, low risk youth

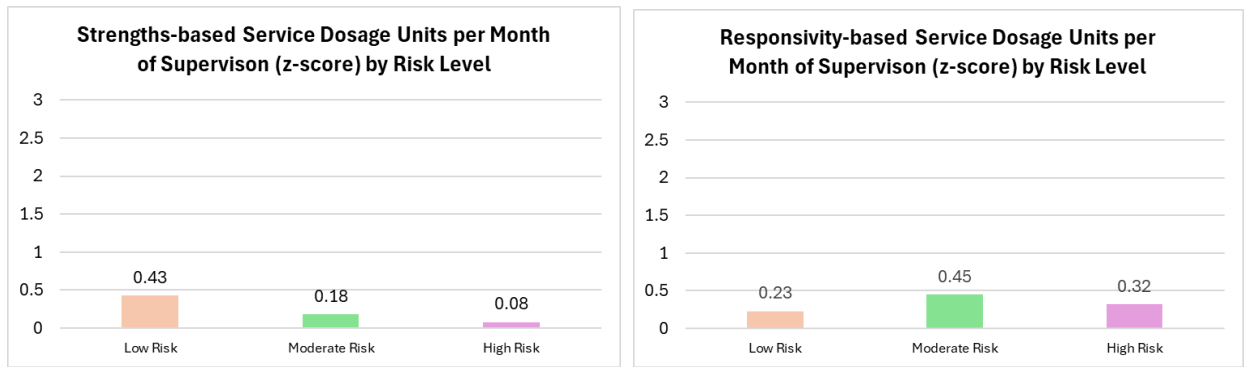
($M = 0.30$) completed the least amount of service dosage units overall compared to moderate ($M = 0.49$) and high-risk ($M = 0.41$) youth after controlling for gender, age, and days in supervision; $F[2, 2115] = 7.14, p < .001$. This was somewhat consistent with the risk principle from the risk-need-responsivity model, however, there was no difference in the dosage of services received between moderate and high risk youth. When examining the different service categories, high-risk youth ($M = .55$) did not differ significantly from moderate risk youth ($M = .44$), but both had higher service dosage units for risk-reduction services than low-risk youth ($M = .06$); $F[2,2115] = 31.96, p < .001$. Low-risk youth ($M = .43$) participated in the highest dosage units for strengths-based services ($F[2,2115] = 14.34, p < .001$), and moderate-risk youth ($Md = .58$) received the highest service dosage units for responsivity services ($F[2,2115] = 8.90, p < .001$).

Did Participation in Services Differ by Age?

After controlling for sex, risk level, and days spent under supervision, younger youth (14 and under) had significantly lower dosages of services overall compared to their older counterparts; $F(2,2113) = 10.92, p < .001$. Younger youth also had significantly lower dosages of strengths-based ($F[2, 2113] = 9.96, p < .001$) and responsivity-related services ($F[2, 2113] = 7.70, p < .001$) than older youth (18 and older). The dosage of risk-reduction services did not vary significantly by age.

Figure 3: Service Dosage Units Per Month of Supervision (transformed into z-scores) by Risk Level (n = 2,182)





Summary of Service Participation

In sum, despite the well-known lack of impact on recidivism (e.g., McCormick et al., 2017; Skeem et al., 2011), the most common service in which youth participated across the three states was mental health counseling, particularly for moderate risk youth (see Figure 3). In fact, with the potential exception of mentoring programs, which depends on the type of program, the most common services received by these youth in the youth justice system were not evidence-based. Low risk youth received the lowest service dosages, with the exception of strengths-based services. However, in this combined sample across the three states, the risk principle was not followed; high-risk youth did not differ significantly from moderate risk youth in participation in services of any type.

Consistent with the retrospective data, we conducted analyses of the prospective data for each state individually to answer the research questions in accordance with both research questions. Consistent with this project's goal of providing strategies for optimizing supervision to the state partners, we created comprehensive reports for each state. In addition, to answering the research questions, the reports included descriptive data about their youths' risk and protective factors, recidivism rates, service allocation, and whether their practices adhered to the risk and need principles of the risk-need-responsivity approach (Andrews & Bonta, 2010). Each report also provided qualitative observations of strengths and challenges to their service data entry and protective factor administration, along with recommendations for system improvements. The investigators presented the key findings and recommendations from these reports to a group of decision-makers in each state, including the leaders from each participating county, and facilitated a discussion towards development of a state plan for system improvements. The de-identified reports with results of the analyses are in Appendices D through F. The next section summarizes these findings in accordance with the research questions and provides the implications for juvenile justice practices.

PUTTING IT ALL TOGETHER

Findings Pertaining to Risk and Protective Factors

Research Question 1: Are there different rates of reoffending by specific risk factor and protective factor domains, and are the rates moderated by age? Do protective factors have incremental predictive validity for recidivism over risk factors?

It was evident from both the retrospective and prospective samples that a sizeable majority of youth referred to the juvenile justice system in all three states were low-risk (retrospective--59.2% in State 1 and 48.2% in State 3; combined prospective--43.1%) and 80.8% were first time offenders. Fortunately, the states often handled these youth informally or gave only minor sanctions (e.g., restitution), but front-end strategies for preventing these juvenile

justice referrals in the first place would be preferable. Rates of violent recidivism after juvenile justice involvement were relatively low, ranging from 6.1% in State 1 (prospective) to 16.3% in State 3 (retrospective). The highest recidivism rates clearly were among the high-risk youth, from 7.5% in State 2, which had the smallest high-risk sample (see Appendix E) to 29.5% in State 3's retrospective sample. The findings lend further support that risk matters.

Which Risk Factors Matter Most for Predicting Violent Recidivism Post-Supervision?

Table 10 provides a summary of the most predictive risk factors for violent post-supervision recidivism identified in both the retrospective and prospective data analyses based on bivariate Cox regressions controlling for age, sex, and race/ethnicity. Table 10 lists the risk factors from largest to smallest effects based on hazard ratios from the prospective analyses (see Appendices D through F for hazard ratios). In State 3, the YASI Skills (refers to problem-solving abilities, impulsivity) and Attitudes (condoning crime) domains also significantly predicted violent recidivism, however, this was not replicated in the prospective analyses and may be due to the retrospective analyses being very well-powered or using the last YASI assessment.

Table 10: Most Predictive Risk Factors of Post-Supervision Violent Recidivism

State 1 YLS/CMI	State 2 YASI	State 3 YASI
Most well-powered	Least well-powered; youngest youth	Highest risk youth
Personality/Behavior**	Community and peers	Family**
Attitudes/Orientation	School problems	Aggression and Violence
Family circumstances	Family	Community & Peer
Education/Employment	Alcohol and Drug	School Problems
Peer relations		
Interactions with Age – Prediction Strongest for Younger Youth		

Substance use	Alcohol and Drug
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Note. **largest effects, meaning the hazard ratio's confidence interval was not overlapping with the other risk factors. We could not examine age moderation effects for violent recidivism in State 2 because the analyses were not sufficiently powered.

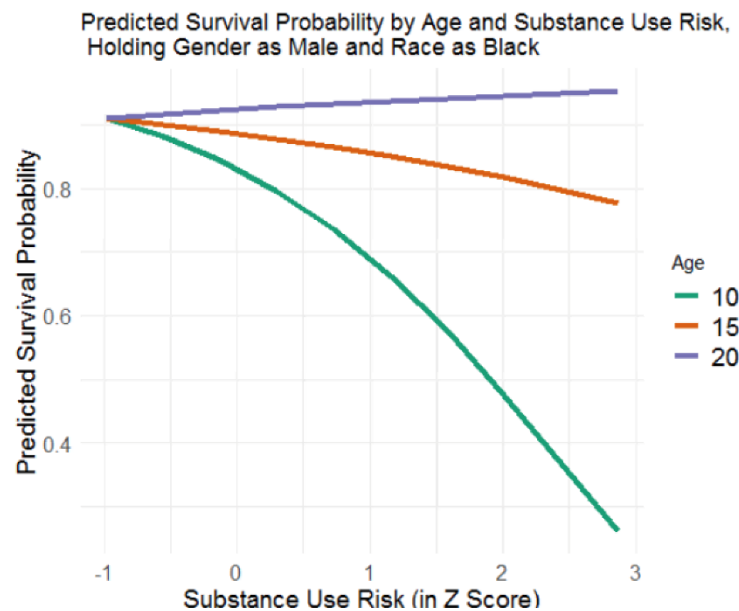
There was some clear consistency across states in the risk factors that mattered most. Specifically, family-related variables, namely the parent-child relationship and quality of supervision, was a consistent predictor of violent recidivism after supervision. School behavior and negative peers were also consistent predictors. There were also a few inconsistencies with State 2, which may be a function of its younger population. Namely, youth disruptive behaviors and poor anger control (the Personality/Behavior and Aggression/Violence domains) were strong and consistent predictors in the other states but were not significant for State 2. Moreover, State 2 was the only state for which substance misuse was a significant predictor of violent recidivism, which is likely due to the younger age of this group. Another inconsistency was that attitudes condoning crime, as measured by the YLS/CMI, was a strong predictor of violence, but the YASI Attitudes domain was not. Most POs had good inter-rater reliability on these assessments, so the findings may point to an inconsistency in how this domain is operationalized between the risk-needs measures. Measurement differences can pose challenges in our ability to guide states with their supervision strategies because it is unclear whether results of predictive validity studies generalize across assessments.

Does the Strength of Risk Factors Depend on Youth's Age?

A very consistent finding in both the retrospective and prospective datasets was that the influence of substance misuse on violent recidivism post-supervision depended on youth's age (see pg. 38 and Appendices D and F). Substance misuse predicted violent recidivism more strongly for younger than older youth after their involvement with the juvenile justice system (see Figure 4 for prospective data example from State 1). This robustly indicates that substance

misuse is a bigger red flag for recidivism among young youth than for older youth, where it is more common. We could not examine this effect in State 2 due to the small sample of youth with risk assessments and the very low violent recidivism rate. However, it was the only state where alcohol and drug use was predictive of violence for the sample as a whole and these were the youngest youth (M age = 14.23 years compared an average > 15 years in the other states).

Figure 4: Survival Probability by Age and Substance Use Risk: State 1



NOTE: As substance use risk increased, predicted survival probability (no violent petition after supervision) decreased for younger individuals (e.g., ages 10 to 14 years). For the older youth age 20 and up, substance use had no influence on violent recidivism.

We also examined whether age moderated risk factors' prediction of any recidivism (includes violence and other delinquent offenses) and the findings were inconsistent. In State 1, a consistent finding in both datasets was that the strength of the influence of negative peer associations depended on youths' age (prospective HR for interaction = 0.94 CI[0.90, 0.99], $p < .05$). This was a more important risk factor for younger youth who may be more susceptible to peer contamination effects than their older peers. Surprisingly, in State 2, younger youth were more vulnerable to aggression and violence risk, having higher recidivism rates as risk levels

increased (HR for interaction = 0.81 CI[0.69, 0.96], $p < .05$). There were age moderation effects in State 3 aside from substance misuse.

Do Protective Factors Matter for Reducing Violent Recidivism Post-Supervision?

Table 11 provides a summary of the most predictive protective factors for violent post-supervision recidivism identified in the prospective data analyses based on bivariate Cox regressions controlling for age, sex, and race/ethnicity. Unlike the risk factor analyses, there were not stronger versus weaker effects for protective factors' prediction of violent recidivism within states; the confidence intervals for the hazard ratios were all overlapping (see Appendices D through F for hazard ratios).

Table 11: Most Predictive Protective Factors for Violent Recidivism Post-Supervision

State 1	State 2	State 3
Most well-powered	Least well-powered; youngest youth	Highest risk youth
Self-control & efficacy	Self-control	Self-control & efficacy
Pro-social engagement (school connectedness & sense of purpose)		
Social support (caregivers)		
Interactions with Age		
Prosocial identity	Social Support (caregivers)	Self-control & efficacy
Pro-social engagement (sense of purpose)	School Connectedness	Social support (caregivers)
		School connectedness

Across states, the protective factor most consistently associated with reduced violent reoffending was self-control. In two states, both the self-control and self-efficacy measures predicted reductions in violent reoffending post-supervision. In the state with the largest sample, which allowed for the ability to detect small effects, social support from caregivers and prosocial engagements (e.g., sense of purpose and school connectedness) also contributed to protection

against violent reoffending. Another notable finding was that, in the most well-powered state (State 1), measures from every protective factor area, including prosocial identity, were predictive of lower recidivism when examining *any type of recidivism* (MISS—HR = 0.80 CI[0.70, 0.92], $p < .01$; MIS—HR = 0.73 CI[0.67, 0.80], $p < .001$).

Does the Strength of Protective Factors Depend on Youths' Age?

A few protective factors were more protective for younger youth than for their older counterparts, with fair variability across the states. Not surprisingly, the most common age-related effects was that school connectedness (see Appendix E and F) and caregiver supports (State 2—HR for interaction = 1.12 CI[1.00, 1.25], $p < .05$, and see Appendix F for State 3) were more important for younger than older youth. In the most well-powered state, prosocial identity and having a sense of purpose also had greater importance for younger youth than older youth (see Appendix D).

What Matters More for Predicting Violent Recidivism: Risk or Protective Factors?

To answer the question of whether protective or risk factors mattered most, we conducted hierarchical Cox regressions entering the covariates at the first block (race/ethnicity, sex, and age), youths' total risk score or level at the second block, and the respective protective factor area (combining all measures within each of our four areas) at the last block. We could not conduct these analyses with State 2 due to the small number of cases with a risk-needs assessment ($n = 173$).

For States 1 and 3, regardless of youths' risk level (which was significantly predictive of violent post-supervision recidivism), high self-control and self-efficacy were still associated with reductions in violent recidivism. The effect for this protective factor area was particularly strong in State 3 (HR = 0.68 CI[.51, .89], $p < .01$; State 1—HR = 0.83 CI[.69, .99], $p < .05$). In State 1,

the most well-powered state, additional protective factor areas were strongly protective against violent recidivism regardless of one's risk level. These areas included having prosocial engagements (e.g., a purpose, school connectedness), which carried the most weight (HR = 0.73 CI[.65, .82], $p > .001$), and social support from both caregivers and peers (HR = 0.84 CI[.71, .99], $p < .01$).

Implications of Risk and Protective Factor Findings

Putting it all together, findings from the retrospective data in Part 1 and the state-level analyses in Part 2 have some robust implications for youth justice practice.

- **A high percentage of youth referred to the system are low risk and the most prevalent risk factors among these youth were not the factors most predictive of violent reoffending after system supervision.** With a few exceptions, the most common risk factors among youth (see pg. 34-35 and Table 7—e.g., Skills, Leisure/Recreation, Substance Abuse) were not strongly predictive of violent recidivism (see Table 9). The exceptions were the Aggression and Violence (State 3) and Family (State 2) domains. Given the harm caused by arrests and juvenile justice system involvement, states should explore county-specific and statewide opportunities for pre-arrest and school-based diversion and other alternative pathways for handling low risk youth.
- **Jurisdictions should focus juvenile justice system resources on youth who are assessed as high risk to reoffend.** Most youth in the study did not receive a new youth petition or adult charge for a violent offense up to three years after supervision. This was true even for youth assessed as high risk to reoffend. At the same time, high-risk youth were significantly more likely to commit recidivism than their peers. Thus, study findings bolster existing research that shows jurisdictions can use resources most efficiently to improve public safety

and youth outcomes by concentrating supervision and services on this higher-risk population, while diverting lower-risk youth from formal processing (Cauffman et al., 2020).

- **Jurisdictions should give particular attention and support to younger adolescents in the juvenile justice system who are misusing substances, and give less emphasis to substance misuse among older youth where it is more common.** This study provides robust evidence that courts and probation departments should focus their substance use treatment efforts on younger adolescents who engage in regular drug use. This does not mean that juvenile justice systems should adopt blanket drug testing policies for all younger youth or refer them all to drug education programs whether they need it or not. Instead, probation agencies should carefully use screening and assessment tools to identify when substance use is a risk factor for younger youth, determine what is driving the drug use, and match them with research-based programs. In contrast, among older youth, experimentation with substances becomes more normative behavior and there may be limited value in giving it much attention over more important issues like parental supervision, personality and behavioral problems, and attitudes condoning crime.
- **Protective factors matter and those most strongly associated with reductions in violent recidivism are were relatively uncommon among youth referred to the juvenile justice system.** Some protective factors appear to dampen the effects of youths' risk thereby protecting them from violent reoffending post-supervision. Most notably, these were self-efficacy and self-control, the latter being quite uncommon among these youth (< 24%, see Figure 2). In the state with the largest sample and thus, the ability to detect small effects, social support from caregivers and prosocial engagements (e.g., sense of purpose and school

connectedness) also contributed to protection against violent recidivism. Presumably, these are the most important protective factors for agencies to bolster via appropriate services.

Findings Pertaining to the Influence of Services on Recidivism

Research Question 2: Is there value added to reducing reoffending by using one type of service strategy (e.g., strengths-based services) over another (risk-reduction services) and is the value moderated by age?

This the first study to design a robust method for capturing and operationalizing (expert consensus regarding what constitutes a risk, strengths, or responsivity service) services youths received while under juvenile justice supervision within both the community and placements. After this study initiated, the states that were recording some services prior to the study had dramatic increases in the number of services they entered per youth (e.g., from 0.3 to 2.84 services per youth in State 1; see Table 5). The states were rarely recording participation in strengths-based services, if all, prior to this study. They are likely representative of most juvenile justice agencies because most strengths-based services are free or self-referred. This simple fact has been a barrier to researchers' ability to quantify the benefits added from these services, and to determine which strengths-based services have the greatest influence on reductions in recidivism.

We conducted the analyses described on pgs. 25-26 to examine the influence of services on post-supervision recidivism after weighting cases based on their likelihood of obtaining any risk-reduction or any strengths-based services using prospective data from States 1 and 3. In State 2, too few youth ($n = 256$) participated any services to conduct these analyses. As shown in Table 12, results of the Cox regression using Inverse Probability Treatment Weighting found youth who participated in any strengths-based services had an increased likelihood of both violent and any post-supervision recidivism. Indeed, in State 3, youth who participated in any

strengths-based services had a 122% increased risk of recidivating violently. The findings for risk-reduction services were better, but still increased the likelihood of any recidivism in State 1 (HR = 1.74, $p < .001$), and did not lead to significant reductions in recidivism in either state.

The direction and strength of these findings held steady across a range of analyses. The consistency was observed when (a) using alternative techniques for sample weighting (traditional propensity scoring), (b) excluding youth who spent any time in placement (presumably those exposed to the greatest peer contagion effects), and (c) examining differences between youth with lower versus higher dosages of services. In the latter analyses, the higher the dosage, the greater was the likelihood of recidivism. Due to the complexity of these analyses, we were unable to examine whether age moderated these effects.

Table 12: Influence of Receiving Services on Post-Supervision Recidivism

Service Type	Any	Violent
State 1		
Any risk service received	HR = 1.74*** CI(1.31, 2.32)	HR = 1.46 CI(0.80, 2.69)
Any strengths service received	HR = 1.35* CI(1.06, 1.71)	HR = 1.28* CI(1.05, 1.56)
State 3		
Any risk service received	HR = 0.70 CI(0.43, 1.12)	HR = 0.78 CI(0.44, 1.39)
Any strengths service received	1.53* CI(1.04, 2.27)	HR = 2.22*** CI(1.52, 3.24)

Note. * = $p < .05$, *** = $p < .001$

In addition to these surprising findings about the inverse effects of service utilization, there were other limitations identified in the service practices within the states. First, only State 1

really followed the risk principle in its allocation of services. In the other states and in the sample as a whole, high risk youth were not getting significantly higher dosages of services than moderate risk youth. Unlike the RNR approach, the PYJ approach does not prescribe sorting youth for services based on level of risk or need. As such, with respect to strengths-based services, the dosage was significantly highest for low-risk youth, which may mean most were self-initiated. Second, as already mentioned, the most common service youth were receiving across all the states was mental health counseling, for which the null influence on recidivism has been fairly well-documented.

State Partners' Explanations About Limitations in Allocation of Services

Our state partners provided many possible explanations for the poor overall effectiveness of services and service allocation:

- There is a need for improved service matching in all three of the states. This includes retraining staff as well as emphasizing its importance in legislation.
- All three states echoed that the legal system has become an even bigger 'dumping ground' for youth with mental health concerns in recent years, and they are becoming the default service provider instead of the mental health system.
- Many counties, especially rural ones, lack sufficient evidence-based risk-reduction services, and often youth are provided services that are available rather than best match their risks.
- Staff retention rates are poor, particularly among service providers, making it difficult to get kids into appropriate services. The providers of evidence-based practices have long waitlists, whereas mental health services are more available.
- Providers and probation staff do not want to work with higher-risk youth. This often means that a youth is not matched based on risks or needs for certain competencies (as is consistent with PYJ, but rather anything just to ensure the youth is engaged in something).

- Judges often put specific services in the court-ordered conditions that may not match the youths' risk factors, and often involve mental health services.

Possible Explanations for the Poor Effect of Risk-Reduction Services

There are a couple plausible explanations for the finding that risk-reduction services increased or had no influence on recidivism.

- **Very few youth received services that would be considered evidence-based**, from 1.6% of youth in State 2 to just under 20% in State 3 (see Appendices D to F). The most common risk-reduction services were victim empathy training, which is not evidence-based and may have little influence on violence, alcohol and drug counseling, which would not reduce violence among older youth based on the analyses here, and EPICS curriculum.
- **Services may not have been well-matched to youths' risk factors.** Measurement of whether youths' risk factors were matched to services at the individual-level was outside the scope of this project. However, our broad analyses of whether the types of services received matched the most common risk factors among youth within a respective state (see Appendices D to F) indicated a significant proportion of youth were probably not receiving services directly aligned with their risk factors.

Possible Explanations for the Negative Effects of Strengths-Based Services

- **Strengths-based services lack implementation guidelines in juvenile justice settings.** In the RNR approach, research shows that services have a limited impact on youth's recidivism unless agencies follow specific implementation principles (Bonta & Andrews, 2007). In contrast, PYJ and strengths-based approaches do not provide specific implementation guidance, at least regarding recidivism reduction. Instead, the assumption is that all youth will benefit equally from services that promote their learning, competencies, attachment, and belonging. In the three states studied, the provision of strengths-based services did not

vary based on youth risk levels, nor did these services target protective factors that most influenced violent reoffending, like self-control, self-efficacy, or school connectedness. This generality is likely due to a lack of insights—such as those gathered in this study—that could guide more targeted service delivery.

- **Limited evidence exists on interventions that build recidivism-reducing strengths.** The field has amassed substantial knowledge about the impact of risk-reduction services—particularly cognitive behavioral and family therapy approaches—on reoffending (Seigle et al., 2014). But there is significantly less research on which interventions are effective at enhancing youth’s protective factors in ways that reduce recidivism and how to implement these with fidelity (Big Brothers/Big Sisters is one exception, Tierney, 1995). As such, it’s unclear whether the most common strength-based services that youth received in the study, such as work placements and different mentoring programs, are effective at reducing reoffending.
- **Strength-based services may have negative peer contagion effects making it necessary to be mindful of mixing youth of different risk levels.** While the first two reasons might explain why strengths-based services did not reduce recidivism for youth in the study, they don’t necessarily explain why youth who received strengths-based services were *more* likely to reoffend. One potential reason for this surprising finding is that common strengths-based services that youth received, including leisure and recreational activities, are often provided in group settings. To the extent that these services did not target or reduce recidivism *and* brought together groups of youth in the justice system (including high-risk youth), they may have inadvertently fostered negative peer influences. Research has shown that group

interventions can lead to a “peer contagion” effect, which may undermine their intended benefits and increase the group’s net likelihood of reoffending (Dishion & Tipscord, 2011).

- **Strength-based services might inadvertently exacerbate youth’s risk factors, undermine their protective factors, or both.** Another plausible explanation for the increase in recidivism is that certain strength-based services may be ill-suited for youth with specific risk factors until those risk factors are addressed. For example, participation in work placements might exacerbate risk of reoffending for youth whose primary risk factors are aggression, impulsivity, and attitudes that support violence. These youth may struggle to navigate the norms and pressures of a work placement, which could undermine their ability to strengthen protective factors and increase the likelihood of aggression and impulsive behavior. It may be important to address risk factors, at least to some extent, before putting youth in these situations.

Implications and Future Directions From Findings Pertaining to Services

The state partners recommended the following future directions for practice to improve the allocation and effectiveness of services:

- Ensure better information sharing between the justice system and service providers, so providers understand RNR and know what factors need to be addressed, particularly in residential programs.
- Increase the use of community-based interventions and change eligibility requirements for evidence-based practices so higher risk youth can access these programs.
- Work with judges to propose different services be provided to the youth to match their risk factors if the court-orders do not align with the assessment, and educate judges about who is in need of mental health services.

- Improve the mental health system to prevent court referrals of low-risk youth with primarily mental health, rather than risk-related, needs.
- Invest more resources into services that address the risk and protective factors that matter most—disruptive behaviors/aggression, family supervision practices, school behavioral problems and connectedness, self-control, self-efficacy, and prosocial engagements.

The analyses here simply scratched the surface of testing the effectiveness of services.

We have several suggestions for future research.

- **Study the influence of specific risk, strengths, and responsivity services on post-supervision recidivism.** This study just scratched the surface of these questions by lumping all risk and all strengths services into groups to determine if receipt of any, versus none, reduced recidivism. It will be important to unpack this and examine whether specific services were leading to the most adverse effects, such as victim empathy training, mental health, and work placements versus evidence-based services.
- **Research is needed to identify which youth populations involved in the system can benefit most from interventions aimed at enhancing protective factors.** The Risk-Need-Responsivity (RNR) approach encourages justice systems to focus interventions on higher-risk youth to get the most “return on investment” in terms of recidivism reduction. In contrast, positive youth development (PYD) approaches don’t typically advise this kind of service matching or resource prioritization. However, given that study findings suggest that enhancing the right protective factors may have recidivism-reduction benefits for youth in the system, more research is needed to guide jurisdictions on whether limited resources for not only risk-reduction services, but also interventions to enhance protective factors, require more deliberate population targeting.

- **Research is needed to understand what interventions effectively enhance youth's priority protective factors and how best to implement them.** Jurisdictions and the field should experiment with various approaches for enhancing youth's protective factors and increase knowledge on what works to reduce reoffending. It is possible that the best way to enhance youth's protective factors, particularly priority factors such as self-control and self-efficacy, is through risk-reduction services like cognitive behavioral therapy or supervision practices focusing on roleplay and skill building. At a minimum, jurisdictions must ensure that strength-based services do no harm.

ARTIFACTS

List of Products

Carew, K.E., & Vincent, G.M. (2024, November). *Does Age Matter? Protective vs Risk Factors in Predicting Violent Recidivism by Adolescent Age Groups*. Paper presented at the annual conference of the American Society of Criminology, San Francisco, CA.

Rice, K., Pendleton, J., Carew, K., Perrault, R., & Vincent, G. (2024, March). *Racial Disparities in Access to Strength-Based Services in Juvenile Justice Settings*. Presented as a Paper for the annual convention of the American Psychology-Law Society. Los Angeles, CA.

Vincent, G.M., Carew, K., Cruise, K., Skeem, J., Pendleton, J., & Rice, K. (2025, March). Symposium: *The Youth Protective Factors Study*. Presentations for the annual convention of the American Psychology-Law Society. San Juan, PR.

Brief: Vincent, G. M., Skeem, J., & Weber, J. (2025). *Protective Factors and Strength-Based Services: Impacts on Long-Term Youth Reoffending*. Worcester, MA: UMass Chan Medical School, Department of Psychiatry, Law & Psychiatry Program.

Brief: Vincent, G. M., Skeem, J., & Weber, J. (2024). *Youth Reoffending: Prevalence and Predictive Risk Factors in Two States*. Worcester, MA: UMass Chan Medical School, Department of Psychiatry, Law & Psychiatry Program. <https://doi.org/10.13028/219x-vs03>.

Vincent, G.M., & Tomassini, R. (2024, September). *Panel: Advancing Justice Through Science*. Presented at the NIJ Research Conference, Pittsburgh, PA.

Vincent, G.M., Marfo, N., Perrault, R.T., Jian, L. (2023, Nov). Panel Presentation: *Implementing Positive Youth Justice in Probation: Examination of Protective Factors by Race and Age*. Presentation to the Annual meeting of the American Criminology Society, Philadelphia, PA.

Weber, J., Skeem, J., & Vincent, GM (2023, August). *The Underexamined, Critical Role of Community-Based Services and Supports in Juvenile Justice Systems: Part 1 and Part 2*. Presentations to the American Probation and Parole Association's 48th Annual Training Institute, NY, NY.

Dissemination Activities

Youth Protective Factors Study Website for posting all publications from this study:

[https://www.umassmed.edu/lawandpsychiatry/law-and-psychiatry-research/NIJ-Youth-](https://www.umassmed.edu/lawandpsychiatry/law-and-psychiatry-research/NIJ-Youth-Protective-Factor-Study/)

[Protective-Factor-Study/](https://www.umassmed.edu/lawandpsychiatry/law-and-psychiatry-research/NIJ-Youth-Protective-Factor-Study/) *Webinars and briefs also have been disseminated through social media: X, Facebook, Instagram, and LinkedIn.

Webinar: Weber, J., Vincent, G.M., Skeem, J (2025 April). *Protective Factors and Strength-Based Services: Impacts on Long-Term Youth Reoffending*. Sponsored by the Council of State Governments.

Webinar: Weber, J., Vincent, G.M., Skeem, J (2024 Nov). *The Youth Protective Factors Study: Risk, Strengths, and Reoffending*. Sponsored by the Council of State Governments.

Datasets Generated

The study archived data via X datasets that included merged data from all three states:

- Retrospective Data Sample
- Prospective Data Baseline file: Demographics, dispositions, index offenses and follow-up information.
- Risk-Needs Assessment File
- Protective Factor Survey File
- Out-of-Home Placements File
- Service Data File
- Recidivism Data File

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APPENDICES

APPENDIX A: SERVICE DATA PARAMETERS & DEFINITIONS

The Youth Protective Factors Study: Effective Supervision and Services Based on Risks,
Strengths, and Development
Investigators: Gina Vincent, PhD, UMass Chan Medical, Jennifer Skeem, PhD, UC-Berkeley, & Josh Weber, CSG Justice Center
Funded by the National Institute of Justice

Which Services to Include:

This project involves entering information into the state case management data system regarding services received that fall into all of the following categories from the date of case inception:

- Services youth are receiving whether the referral came from probation (youth justice)/the court or another source (e.g., services youth were receiving prior to involvement with probation that they are continuing to receive, family referred),
 - Services being received from another system if known (e.g., child welfare),
- Non-contracted and contracted services, (would provide instruction & guidance about what this means – ask them to include everything)
- In-house services (e.g., victim awareness, shoplifting course),
- Free services (these are often the strengths-based services),
- School-based services,
- Job and school-related programing, transitional/independent housing, etc
- Services POs are doing with the youth (EPICS, Carey Guides, etc)

Data Elements to Track for Each Service Received - Minimum:

For each youth over the duration of their involvement with the court/probation from the time of their referral, regardless of the exact disposition:

- Actual start date (NOT the service referral date)
- Actual end date – **case close date if service still in progress**
- The type of service received, including EBPs (e.g., MH counseling, functional family therapy, residential substance use treatment, peer groups, mentoring)
- Text field providing exact service
- Provider Agency Name
- Program completion (completed, terminated unsuccessful, not completed-other reason)
- Measure of attendance/dosage (e.g., attended weekly, attended biweekly, attended once per month, attended less than once per month, sporadic attendance-not engaged)

APPENDIX B: EXPERTS' INSTRUCTIONS FOR CATEGORIZING SERVICES

Goal:

- We are evaluating the impact of risk-reduction vs. strengths-enhancing services on recidivism rates for youth on community supervision, including youth of different ages.
- Your assistance in classifying services that are being implemented in the three study sites (i.e., Wisconsin, Pennsylvania, and Virginia) will help us to achieve consensus on how best to code these services.

Instructions

- Please rate all services listed in the accompanying spreadsheet, using the dropdown menus provided.
 - Most of these services are “name-brand” or “generic” programs, practices or classes that are well-known in the juvenile justice field. For services that are less well-known or unique to a location, we provided descriptions to help with classification. If you have questions about a specific service, please email one of us.
 - Refer to the definitions below to guide your ratings.
- If you do not feel confident about a classification or feel explanation is needed, please feel free to indicate that in the spreadsheet (rater comments/concerns column). This includes concerns that a classification is highly dependent on unknown circumstances/factors.
 - In recognition of potential ambiguity, the dropdown rating includes options for interventions that cannot clearly be classified as Risk Reduction or Strengths Enhancing but may lean more in one direction than another.

Service Rating Categories

The spreadsheet asks you to rate each of the 70+ services/activities on two dimensions—the extent to which the service/activity is risk-vs. strengths-based; and whether the service/activity is specifically responsive.

- 1. Risk vs. Strengths Service:** There are five categories for rating the extent to which the service focuses on risk reduction vs. strengths enhancement—which are both defined below.
 - 1 = Risk-reduction
 - 2 = More risk-reduction than strengths-enhancing
 - 3 = More strengths-enhancing than risk reduction
 - 4 = Strengths-enhancing
 - 0 = NA –not a service, or neither a risk-reduction nor strengths-enhancing service
- 2. Specific Responsivity Service:** This column asks you to indicate whether the intervention is specifically responsive (e.g., provides services in a manner that is responsive to gender,

race/ethnicity, and/or other individual characteristics). Specific responsivity is defined below.

We separated these two ratings because they are not mutually exclusive. For example, a gender-specific peer group (e.g., ManUp) that focuses on interpersonal conflict resolution and social skill development may be both a ‘more risk-reduction than strengths enhancing’ service that also meets the principle of specific responsivity.

Service Rating Definitions

Risk-Reduction Services: explicitly targets risk factors for re-offending, or changeable “criminogenic needs” like pro-criminal attitudes, substance abuse, antisocial peers, family problems, school behavioral or underperformance problems, etc. The focus is on reducing risk factors to prevent recidivism. Examples may include programs such as Aggression Replacement Therapy, Multisystemic Therapy, more, and cognitive behavioral therapy programs.

Strengths-Enhancing Services: explicitly targets the development of quantifiable assets, strengths, promotive factors, protective factors, etc. to generate positive outcomes. The outcomes focus is not (necessarily) restricted to desistance from crime, but also includes broader adolescent development and attaining a prosocial, healthy adulthood. General focus is: 1) “learning/doing” (building new skills, competencies, roles, responsibilities, and confidence or self-efficacy) and 2) attaching/belonging (getting into prosocial groups, serving others, being part of a community). In short, these services promote competence and skill building, prosocial activities, prosocial engagements, and/or prosocial attachment. Examples may include Big Brothers/Big Sisters, educational and vocational improvement programs, and restorative justice programs targeted at mediation/relationship building.

Specific-Responsivity Services: this category refers to interventions that provide the treatment in a style and mode that is responsive to the individual’s learning style and ability and could facilitate the effectiveness of risk-reduction or strengths-based services. According to Bonta & Andrews (2010), specific responsivity services individualizes services to the person’s bio-demographic characteristics (e.g., race, ethnicity, age, gender), ability, and motivation. These also may address non-criminogenic needs that can be barriers to one’s ability to benefit from or participate in other services (e.g., self-esteem, learning disabilities, transportation).

Not a Service: for items that you don’t believe should be considered actual services because the items are not treatment or rehabilitation-oriented (potential example could include unstructured recreational activities or supervision-oriented interventions).

APPENDIX C: PROTECTIVE FACTOR SURVEY SAMPLE CHARACTERISTICS

Protective Factor Survey Sample Characteristics (n = 1908)

	Count	Percent (%)
Sex		
Boys	1378	72.2%
Girls	525	27.5%
Missing	5	0.3%
Race/Ethnicity		
Non-Latinx Black	862	45.2%
Non-Latinx White	694	36.4%
Latinx	236	12.4%
Other/Unknown	116	6.1%
Risk Level (Combined YASI/YLS) n = 1785		
Low Risk	791	41.5%
Moderate Risk	775	40.6%
High/Very High Risk	219	11.5%
Missing	123	6.4%
Age Categories		
14 and Under	637	33.4%
15 to 17	1169	61.3%
18 and Older	102	5.3%
Offenses		
Violent Index Offense	850	44.5%
No prior referrals	1565	82%
Any prior violent offense	149	7.8%
	Mean	Range
Number of prior referrals/petitions	0.40 (SD = 1.2)	0-18
Age at Start Date (years)^a	15.1 (SD = 1.7)	9-20 yrs
Social Deprivation Index (SDI)^b	51.9 (SD = 30.1)	1-100

^a Age was calculated at youths' start date—the date of the initial risk-needs assessment or protective factor survey, whichever came first, or the date of the referral for those who did not receive either.

^b Social Deprivation Index (SDI) is composite measure of area level deprivation and a proxy for socioeconomic status. Scores can range from 1 to 100 with higher scores indicating greater deprivation

APPENDIX D: STATE 1: PROSPECTIVE SAMPLE STATE REPORT

The Youth Protective Factors Study: A Strategy for Promoting Success Based on Risks, Strengths, and Development

A. Background

The Youth Protective Factors Study is an unprecedented multistate, multiyear examination of what risk and protective factors matter most when it comes to reoffending - particularly for violent and other person offenses - for youth ages 10 to 23 who are involved in the juvenile justice (JJ) system. The study also was designed to examine how to maximize case planning and service use, while preserving public safety and enhancing positive youth outcomes by examining what types of services are associated with the greatest reductions in recidivism. The study asked the following key questions:

- Which risk factors best predict violent recidivism, for youth of different ages, after youth are no longer involved with the juvenile justice system?
- Which protective factors are most strongly associated with reductions in violent recidivism, for youth of different ages, after youth are no longer involved with the system?
- What services—risk reduction and/or strengths enhancing—are most effective in reducing violent recidivism, and how do these vary for youth of different ages?

B. State 1 Study Sample Description

The original state 1 prospective sample comprised 2,008 youth eligible for the YLS/CMI according to the policies in each of the five participating counties. Seven of the 2,008 cases had to be removed because they were lost at follow-up (e.g., passed away, relocated out of state), resulting in a final sample size of 2,001. Of the 2,001 youth:

- 1,197 (59.8%) completed both a protective factor survey and the YLS/CMI,
- 608 (30.4%) had the YLS/CMI only,
- 91 (4.6%) had the protective factors survey only, and
- 105 (5.3%) did not get either the protective factor survey or a YLS/CMI during the study period for various reasons (e.g., contesting charges, counseled and closed quickly).

Table 1 displays the demographic characteristics of the full sample.

Table 1: Sample Characteristics

	Percentage (%)	Count
Sex		
Boys	72.8%	1,457
Girls	27.2%	544
Race/Ethnicity		
Non-Latinx Black	45.1%	902
Non-Latinx White	36.9%	739
Latinx	13.2%	265
Other/Unknown	4.7%	95
Any placement during the study	19.6%	393
Offense/Prior Offenses		
Current referral for violent offense	48.3%	967

No prior referrals	86.6%	1,734
Prior referral for violent offense	6.8%	137
Most Serious Disposition for Current Referral		
No/Minor Sanction	11.1%	222
Informal	33.3%	666
Consent Decree	25.5%	510
Probation	23.5%	470
Placement	4.1%	82
Missing or pending	2.5%	51
	Mean	SD
Number of prior referrals	0.24	.78
Age (years)^a	15.32 (10-20 yrs)	1.74
Social Deprivation Index (SDI)^b	49.43	31.10

^a Age was calculated at youths' start date—the date of the initial YLS/CMI or protective factor survey, whichever came first, or the date of the referral for those who did not receive either.

^b Social Deprivation Index (SDI) is composite measure of area level deprivation and a proxy for socio-economic status. Scores can range from 1 to 100 with higher scores indicating greater deprivation

Placements: Almost 20% (n =393) of youth spent time in a placement at some point during the study. We defined *placements* as group homes, shelters, post-adjudication detention, residential treatment facilities, psychiatric hospitalizations, and youth development centers (YDC). The majority of placements were short-term detention stays, with 12.5% going to residential or substance use treatment, and 5.2% went to a YDC or forestry camp.

Follow-up Information

We tracked all supervision and service activities for youth from their *start date* (date of the first YLS/CMI or protective factor survey, whichever came first, or the time of their first referral for those with neither) to the end of any involvement with the juvenile justice agency (including any extensions due to new offenses before the original supervision was completed), or the end of the study, whichever came first. Supervision may include involvement in a diversion program, informal adjustment, probation, a secure placement or a combination of any of the above.

Youth in this sample spent a median 233 days under supervision (range from 0 days for those counseled and closed to 1,259 days) between the study start date and the end of the study period, or when the date any supervision ended, whichever came first.

We tracked recidivism after supervision for the 1,643 youth who completed their juvenile justice involvement during the study, with the average post-supervision time ranging from 53 to 899 days (Md= 422).

Although it was not the main outcome variable for the study, we also examined recidivism occurring during supervision for individuals who spent at least 7 days under supervision after their study start date (n = 1,919).

C. Risk Factor Descriptives

YLS/CMI Inter-Rater Reliability

Based on the limited data available, probation officers (POs) in the five study counties generally had high inter-rater reliability on the YLS/CMI. We gauged their inter-rater reliability using performance data tracked by each county following the statewide YLS/CMI booster training in 2022. Using a conservative approach, we defined *low or questionable* inter-rater reliability by identifying those who rated items different from the consensus rating on one or two items (depending on the domain) within two or more YLS/CMI domains. We did not receive reliability data for 41.5% of POs who conducted YLS/CMIs for youth in our sample. However, among the 70 POs with reliability data, only 7.58% had low or questionable reliability.

Risk Levels and Need Domains

Over 90% of youth in the sample had an initial YLS/CMI (n = 1,805), with the highest proportion of youth being low risk (49%).

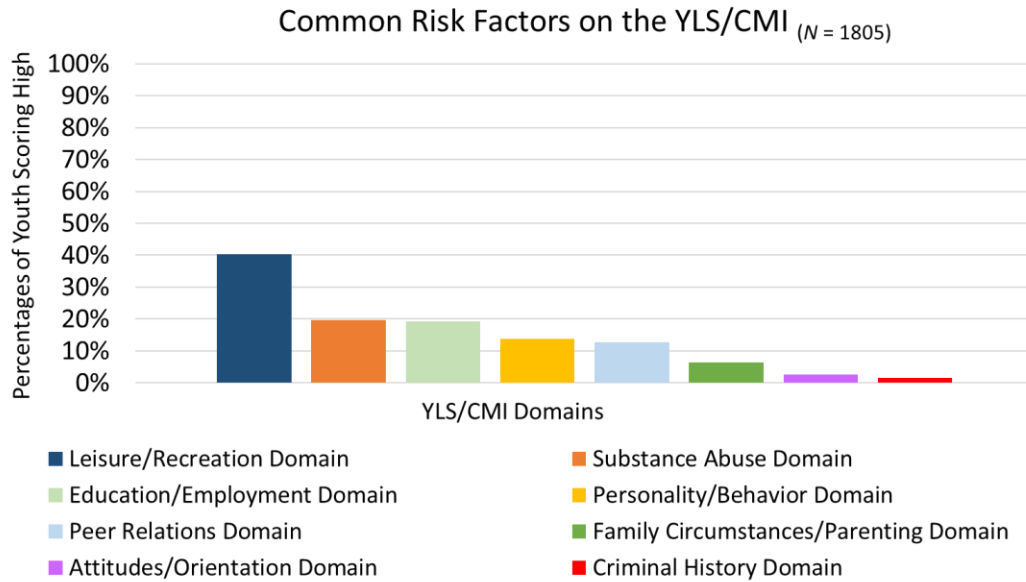
Table 2: YLS/CMI Risk Level (N = 1,805)

Low	49.0%
Moderate	42.3%
High	8.4%
Very High	0.4%
Total	100%

Consistent with our retrospective sample findings, the most common risk domains—i.e., the domains where the most youth were scored high (*not* necessarily the domains that most strongly predicted reoffending)—were (See Figure 1):

- Leisure Recreation, with 40.4% scoring high
- Substance Abuse, with 19.6% scoring high
- Education/Employment, with 19.3% scoring high

Figure 1: Common Risk Factors on the YLS/CMI (n = 1805)



Most Serious Dispositions by Risk Level

As shown in Table 3, consistent with the risk principle, among youth with both a YLS/CMI and disposition data ($n = 1,788$), low-risk youth were most likely to be handled informally and high-risk youth were most likely to receive a placement; $\chi^2 (8) = 184.74, p < .001$. The most common disposition for each risk category was as follows:

- Low-Risk youth = Informal Adjustment (42.1%)
- Moderate-Risk youth = Probation (31.8%) or Consent Decree (27.2%)
- High-Risk youth = Probation (25.8%) or Consent Decree (25.2%)

Surprisingly, 18.1% of high/very high-risk youth received no sanction or only a minor sanction, which was a higher percentage than for low-risk youth.

There were significant differences in disposition by county such that, relative to the other NIJ counties:

- County 2 had significantly higher rates of no sanctions,
- County 22 had significantly higher rates of informal adjustments,
- County 39 had significantly higher rates of consent decrees, and
- County 9 and County 46 had significantly higher rates of probation.

Table 3: Most Serious Initial Disposition Received by Youth at Each YLS/CMI Risk Level (N = 1,755)

YLS/CMI Risk Level	N	No or Minor Sanction %(N)	Informal %(N)	Consent Decree %(N)	Probation %(N)	Placement %(N)
Low	876	5.5% (48)	42.1% (369)	39.7% (260)	21.7% (190)	1.0% (9)
Moderate	757	11.8% (89)	23.9% (181)	27.2% (206)	31.0% (235)	6.1% (46)

High-Very High						
High	155	18.1% (28)	14.2% (22)	25.2% (39)	25.8% (40)	16.8% (26)
Total Dispo		9.2% (165)	32.0% (572)	28.2% (505)	26.0% (465)	4.5% (81)

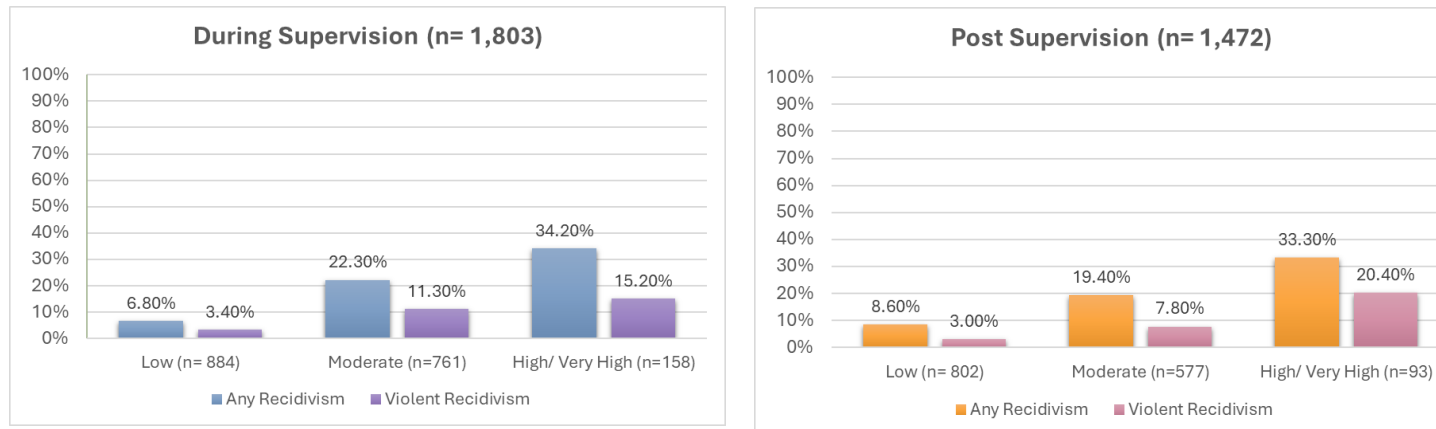
D. Recidivism

We defined recidivism as new petitions. The recidivism rates for this sample were low overall:

- During supervision (n= 1,919), the rate of any recidivism was 14.9% (n= 285) and 7.3% (n= 141) for violent recidivism over the median 233 days spent on supervision.
- After supervision (n= 1,643), the rate of any recidivism was 14.7% (n= 241) and 6.1% (n= 101) for violent recidivism over the median 422 days youth were tracked post-supervision.

Risk was significantly associated with recidivism, both during supervision (any- $\chi^2(2) = 118.84, p < .001$, violent - $\chi^2(2) = 49.03, p < .001$) and after supervision (any- $\chi^2(2) = 60.65, p < .001$, violent - $\chi^2(2) = 50.68, p < .001$). The highest rates of recidivism were among high/very high risk youth (see Figure 3). Note the sample sizes in the figures are lower than those for the overall recidivism rates due to youth missing the YLS/CMI.

Figure 3: During vs. Post-Supervision Recidivism Rates by Risk Level



Which Risk Factors Most Strongly Predicted Recidivism?

We used each youths' initial YLS/CMI to predict 'after-supervision' recidivism, while controlling for the length of time youth had an opportunity to reoffend (see recidivism methods in Appendix). Our focus was on recidivism after supervision to avoid the influence of any current supervision strategies. The goal was to capture the likelihood that youth reoffend, *after* a period of supervision and services in these agencies.

After controlling for youths' baseline demographic characteristics (i.e., age, gender, race/ethnicity), the strongest predictor of violent recidivism after-supervision was:

- **Personality/Behavior** (HR=2.05 CI[1.89, 2.21]).

Other strong predictors of violent recidivism after supervision, which were comparable to each other but not as strong as personality/behavior, were:

- **Attitudes/Orientation** (HR=1.66 CI[1.40, 1.97]).
- **Family Circumstances** (HR=1.52 CI[1.33, 1.73]),
- **Education/Employment** (HR=1.49 CI[1.36, 1.62])
- **Negative Peers** (HR=1.43 CI[1.27, 1.62])

These five domains were also the strongest predictors of recidivism in state 1's 2017-2019 statewide sample. However, each of these domains predicted violence more strongly in this prospective sample from only five counties. This is especially true of Personality/Behavior.

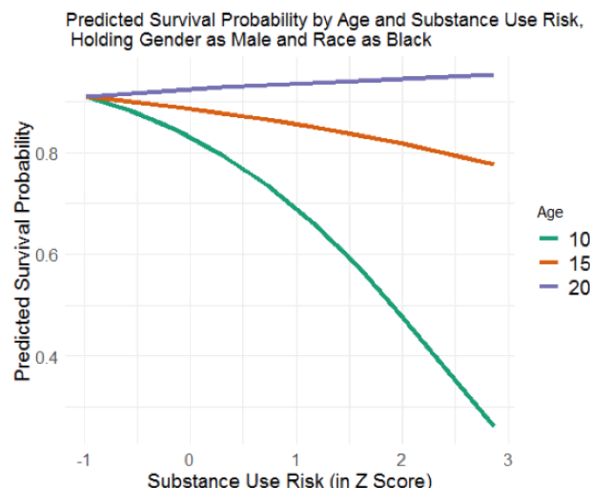
A weaker predictor of violent recidivism after supervision was Substance Abuse (HR=1.24 CI[1.03, 1.50]). Substance Abuse more strongly predicted less serious recidivism (any new delinquency petition; HR=1.46 CI[1.34, 1.60]). Leisure/Recreation did not predict violent recidivism at all, and weakly predicted any recidivism.

Does the Strength of Risk Factors Depend on Youth's Age?

In a few instances, the importance of a risk factor depended on the youth's age. The clearest instance of this regards **Substance Abuse (see Figure 5)**. Consistent with what we found in state 1's 2017-2019 statewide sample, substance abuse predicted both violent and less serious recidivism more strongly for younger than older youth, after their involvement with the juvenile justice system. This robustly indicates that substance abuse is a bigger red flag for recidivism among young youth than for older youth, where it is more common.

The influence of negative **Peer Relations** also depended on youths' age in the same direction but only for less serious offending. In other words, this was a more important risk factor for younger youth who may be more susceptible to the peer contamination effects.

Figure 5: Survival Probability by Age and Substance Use Risk



NOTE: As the level of substance use risk increased, predicted survival probability (no violent petition after supervision) decreased for younger individuals (e.g., ages 10 to 14 years). For the older youth age 20 and up, substance use had no influence on violent recidivism.

E. Protective Factors

Qualitative Observations on Strengths and Challenges to Protective Factor Survey Administration

Out of the 2,001 youth in our sample, 715 (35.6%) who were eligible for a PF survey did not receive one. For a few cases, this was due to youth declining to take the survey ($n = 116$, 5.8%) or cognitive/language challenges ($n = 31$, 1.5%). For the majority of cases ($n = 568$; 28.3%), reasons for missing surveys as reported by probation officers (POs) were transfers, charges being withdrawn/dismissed shortly after the YLS/CMI was completed, or youth automatically being sent to detention. However, many youth who received consent decree or informal adjustment dispositions also did not complete the survey.

Despite the 30% rate of missing protective factor surveys, the counties did a good job of obtaining surveys for a representative sample of youth. The only differences in demographic characteristics between youth who did and did not get the protective factor survey were:

- Lower risk youth were significantly less likely than other risk levels to have a protective factor survey; $\chi^2 (2, N = 1805) = 9.18, p = .01$.
- Older youth were less likely to get a protective factor survey than younger youth; $r (2001) = -.05, p = .02$.

Protective Factor Survey Descriptives

After removing youth who did not appear to have valid protective factor surveys, the final sample of youth was 1,256 (62.8%). Because the protective factor measures do not have cutoff scores that distinguish high from low scorers, particularly in juvenile justice samples, we used receiver operating characteristic curves to identify the score on each scale that best discriminated the group of youth with 15% or less recidivism from those with greater likelihoods of reoffending.

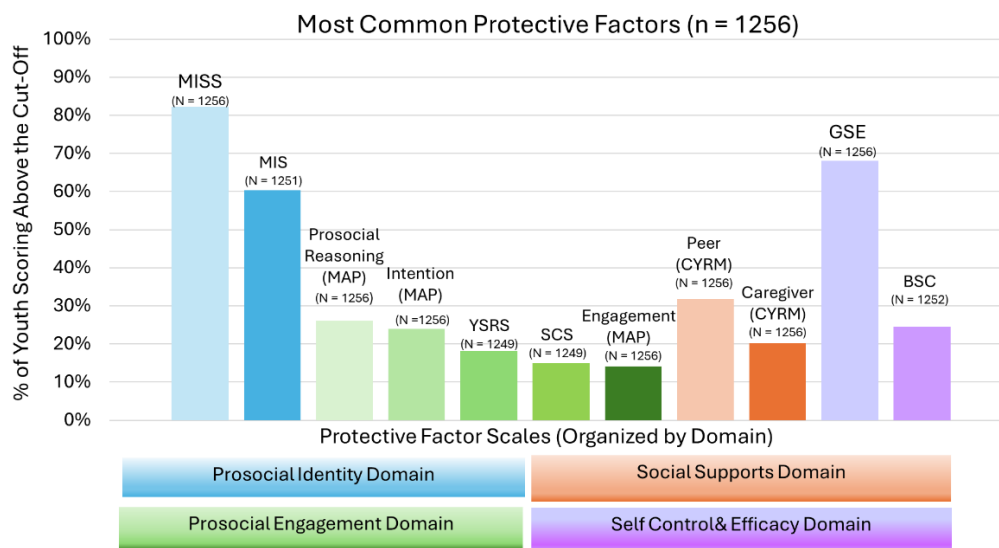
We used those cut-off scores to describe the most common protective factor domains (see Figure 2). The domains with 50% or more youth scoring above the cut-off scores in state 1 were:

- Prosocial Identity (MISS: 82.4%; MIS: 60.4%)
- Self-Efficacy (GSE: 68.1%)

The domain with the lowest proportion of youth scoring above cut-off scores—i.e., the least common protective factor domain in state 1—was:

- Prosocial Engagement -- Adolescent Purpose -engagement scale = 14.2%.

Figure 2: Most Common Protective Factors Within the Youth Sample (n = 1256)



What Protective Factors Most Strongly Predicted Recidivism?

Like the risk factors, most of the protective factor measures predicted reductions in violent recidivism after supervision. The following domains and specific measures most strongly protected against violent recidivism:

- **Prosocial Engagement**
 - Having a sense of purpose (HR=0.74 CI[.63, .86])
 - School Connectedness (HR=0.77 CI[.63, .93])
- **Social Supports**
 - Caregiver Support (HR=0.75 CI[.65, .86])
 - To a lesser extent, Positive Peer Support (HR=0.85 CI[.75, .96])
- **Self-control and Self-efficacy**
 - Self-control (HR=0.76 CI[.66, .88])
 - Self-efficacy (HR=0.81 CI[.73, .89])

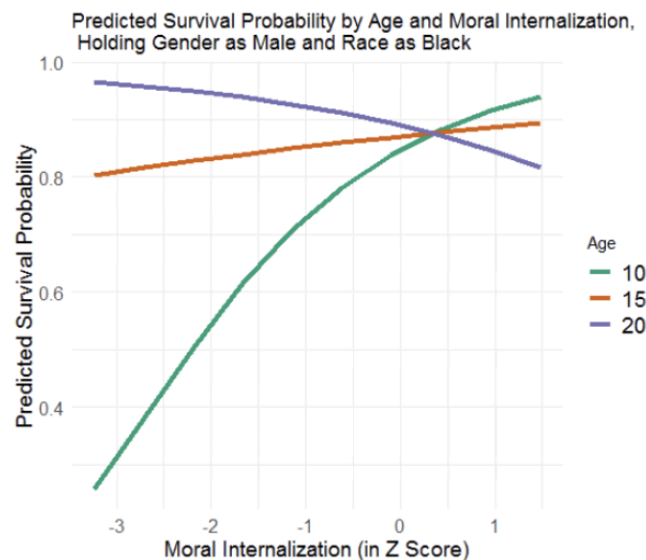
For less serious recidivism after supervision, every domain significantly protected against recidivism, except the Inventory of Involvement. **Moral Internalization** (HR=0.73 CI[0.67, 0.80]), a measure of prosocial identity, was among the strongest predictors, and School Connectedness (HR=0.91 CI[0.82, 0.99]), was the weakest.

Those with higher scores on caregiver support and self-control were significantly likely to receive less serious dispositions, while low scores in these protective factors were associated with placement dispositions. This suggests courts and probation officers may be weighing these factors in their decisions. In part, this may be due to an association between low caregiver support and neglect.

Does the Strength of Protective Factors Depend on Youth's Age?

The influence of two protective factors on violent recidivism after supervision differed based on youths' age. First, **Moral Internalization** (a measure of prosocial identity; HR for interaction =1.11 CI[1.04, 1.18]) strongly protected against violent recidivism for younger youth (ages 10 to 14) and had little influence on recidivism among older youth (see Figure 6). Second, whether youth felt they **had a purpose** (a measure of prosocial engagement) followed a similar pattern.

Figure 6: Survival Probability by Age and Moral Internalization



NOTE: Moral internalization influenced reductions in violent recidivism after supervision for younger youth (ages 10 to 14) but had little influence for older youth.

F. What Matters for Predicting Violent Recidivism: Risk Factors, Protective Factors, or Both?

The answer to what matters more for youth recidivism, risk or protective factors, is BOTH matter. After controlling for gender, race, and age, the YLS/CMI total risk score strongly predicted violent recidivism after supervision. However, in incremental predictive validity analyses, it was clear that several domains of protective factors added to the YLS/CMI to create even stronger predictions:

- **Having prosocial engagements** (e.g., a purpose, school connectedness, and sense of responsibility) carried the most weight (HR = 0.73 CI[.65, .82])
- **Self-control and self-efficacy** also added uniquely to the utility of risk in the prediction of reductions in violent recidivism (HR = 0.83 CI[.69, .99])
- **Social support** (caregiver and peer) also added to the utility of risk in this prediction (HR = 0.84 CI[.71, .99])

Prosocial identity seemed to matter more for predicting reductions in less serious recidivism and for younger youth.

G. Key Takeaways/Recommendations for State 1 Related To Risk And Protective Factors

1. Half of all youth referred to court were assessed as low risk to reoffend and two-thirds of youth referred received no sanction, an informal disposition, or a consent decree. Given the harm caused by arrests/juvenile justice system involvement, state 1 might explore county-specific and statewide opportunities for pre-arrest diversion/alternative pathways for handling low risk youth.
2. Based on available data, probation officers were generally completing the YLS/CMI to fidelity and the risk principle was applied to disposition decisions. At the same time, over 20% of low-risk youth were placed on probation while 18% of high-risk youth received no sanction and almost 40% received an informal disposition/consent decree. State 1 should identify potential opportunities to improve supervision matching. Based on the data in this study, our observations are as follows:
 - a. Some of the low-risk youth placed on probation were those that committed serious offenses (e.g., sex offenses, assault with bodily injury, robbery) and it may be difficult for a probation office to promote informal approaches for these youth.
 - b. However, many of the low-risk youth on probation were isolated to two counties. This stresses the need for continued probation and judicial education on the need to conduct risk/needs assessments pre-disposition and their use.
 - c. Some high-risk youth handled informally committed fairly low-level offenses. However, if they are high risk then they have significant criminogenic needs. While such youth may not require intensive supervision, it is worth reviewing how state 1 can ensure they are connected with more intensive services to address their underlying needs..
 - d. Likewise, some high-risk youth who received no sanction had serious offenses but their petitions were withdrawn. We recommend reviewing the reasons for these withdrawals and decision-making criteria in these cases. In addition, even if due to factors beyond probation's control (prosecutor withdraws petition, victim can't be found, etc.), it is worth considering strategies for ensuring these high-risk youth are still connected to services regardless of their system involvement.
3. Overall, violent recidivism rates during (7%) and after (6%) supervision were low, consistent with the overall low-risk nature of the youth population. These rates were higher among high-risk youth (15% during/20% after supervision). The takeaway is that state 1 should continue to rely on risk scores for guiding supervision and service decisions, and bolster strategies for reducing reoffending for high-risk youth.
4. Consistent with our findings in the state 1 2017 to 2019 statewide sample, the most common risk factors among youth referred to probation intake—including leisure/recreation and substance use—are not the risk factors most strongly predictive of violent recidivism after supervision (with personality/behavior having the strongest predictive power). Key implications include:

- a. Lends further support for state 1 considering strategies for pre-arrest diversion to avoid any contact with the juvenile justice system for the lower risk youth. This is particularly important given that the most common risk factors among these referred youth were not predictive of more serious, long-term offending and could likely be effectively addressed outside of the justice system/court processes.
 - b. Emphasizes the importance of individualized case planning, probation conditions, and service delivery approaches since standardized requirements like drug testing all youth, will not address the key risk factors for more serious offending.
 - c. Priority should go to supervision and service strategies that target the following risk factors, which are most strongly tied to violent recidivism after supervision— Personality/Behavior risk area + Problems with family, Attitudes supporting crime, School and employment behavioral problems, and Reducing attachments to negative peers (particularly for younger youth). However, as per the below service analysis, it's not clear that state 1 is consistently employing services for youth that address these specific risk factors, and thus, state 1 should examine both its service matching practices as well as the use of specific type of services.
5. Risk factors and related services pertaining to *substance abuse* are not predictive of serious reoffending for older youth (over age 14). State 1 should consider a set of strategies to identify and target younger youth with more serious substance use behavior for potentially more intensive interventions, and de-prioritize these services for older youth. As shown in the Appendix, drug and alcohol related services were among the most common services received for the sample overall, and may not be the best use of resources.
 6. *The protective factors* most strongly associated with reductions in violent recidivism are those that were relatively uncommon among most referred youth. We are interested in working with state 1 to institute a shortened, prioritized version of the protective factor survey as a regular part of its intake practices. This can contribute to case planning by incorporating strengths-based services that may uplift the most important protective factors; namely, prosocial engagements – particularly those that give adolescents a purpose, Self-control, and Caregiver and peer social support. Assistance with developing a prosocial identity may be helpful for younger youth (age 14 and younger).

H. Service Descriptives

Researchers tracked all services that youth attended from each youth's study start date to the end of their JJ involvement, or end of the study period (12/31/2023), whichever came first (Md = 233 days follow-up). We calculated each youth's number and dosage of services.

Of the 2,001 youth cases, 503 did not receive any services during the study period. Relative to youth who received services, those who did not receive any tended to:

- Be lower risk; $\chi^2 (2) = 56.75 p < .001$
- Be non-Latinx White; $\chi^2 (3) = 19.32 p < .001$

- Have a disposition of Informal or No or Minor Sanction (which was also tied to risk level); $\chi^2 (4) = 283.36$ $p < .001$
- Be in County 46; $\chi^2 (4) = 109.41$ $p < .001$

There was no significant gender difference in the receipt of any services.

NOTE: All descriptives and analyses in this section were based on the remaining 1,502 cases with services.

Services Most Commonly Received

Overall, the median number of services youth (n = 1,502) received in each category were:

- 1 Risk-reduction service
- 1 Strengths-based service
- 0 Responsivity-only services

Appendix Table 5 provides the frequency at which the sample of 1,502 youth received the full list of services in the data, broken into our three buckets. The services most commonly received represented a blend of risk reduction, strengths-based, and responsivity-only services:

- Mental health counseling (individual, group, or outpatient = 33.8%) – Responsivity
- Victim Awareness/Empathy training (25.5%) – Risk-reduction
- Work Placement (23.4%) – Strengths-based
- EPICS curriculum (20.9%) – Risk-reduction
- Drug and Alcohol counseling (14.7%) – Risk-reduction

Appendix Table 6 provides the counts and percents of services received for only the moderate and high risk youth.

It appears that only 16.6% of youth received what would be defined as evidence-based programming (see Appendix Table 5).

Service Dosage

Overall, youth (n = 1,502) received a higher dosage of responsivity-only services than any other type.

The units of services per month of supervision were as follows:

- Any services—median = 57.82 units (0 to 480.57)
- Risk-reduction services—median = 7.41 units (0 to 136.51)
- Strengths-based services—median = 3.14 units (0 to 150.45)
- Responsivity-only services—median = 30.09 units (0 to 264.45)

Among youth who received any services, after controlling for time youth spent on supervision, there was some variability in the dosage of services received based on certain youth characteristics:

- Non-Latinx White youth received higher dosages of services overall than other race/ethnicity groups; $F(3, 1497) = 19.09, p < .001$
- Higher risk youth received higher dosages of services; $F(2, 1445) = 5.60, p = .04$ (see Table 4)
- Youth with no or only minor sanctions received the lowest dosage of services, and those sent to a placement received the highest; $F(4, 1470) = 7.84, p < .001$. (see Figure 11).

There were no differences in the dosage of services received based on youths' age or gender after controlling for length of supervision.

There were county-based differences in receipt of services and dosage—and/or in the tracking of services--(after controlling for gender, race, age, youth's risk levels, and disposition), such that:

- County 2 had the lowest service dosage per month on supervision overall ($F(4, 1430) = 8.734, p < .001$)
- County 46 had the fewest risk-reduction services ($F(4, 1430) = 6.32, p < .001$), and most responsivity services ($F(4, 1430) = 6.32, p < .001$)
- County 9 had the highest dosages of any services, risk reduction ($F(4, 1430) = 27.17, p < .001$) and responsivity services ($F(4, 1430) = 6.32, p < .001$)
- County 22 youth had the highest dosage of strength-based services; $F(4, 1430) = 8.73, p < .001$, and second highest dosage of risk reduction services. They were closely followed by County 39 and County 2.
- County 39 youth received the highest number of services overall ($F(4, 1430) = 35.56, p < .001$), and for both risk-reduction ($F(4, 1430) = 27.17, p < .001$) and strengths-based services ($F(4, 1430) = 8.73, p < .001$), even though their dosages were lower than other counties.

Is Service Dosage Following the Risk Principle?

The short answer is 'in some respects'. Low risk youth received lower dosages of services than moderate to high-risk youth; however, there was less difference between moderate and high-risk youth. Our analyses (Analysis of Covariance) of service dosage units per month by risk level (after controlling for race, which was related to receipt of services, and months on supervision), demonstrated state 1 is following the risk principle in the expected direction.

- Any service: low risk youth received the lowest dosages, and moderate risk youth were significantly lower than high risk ; $F(2, 1444) = 7.35, p = .001$
- Risk-Reduction services: low risk youth received lower dosages and moderate risk youth were significantly lower than high risk; $F(2, 1444) = 39.67, p < .001$
- Responsivity services: low risk youth received lower dosages and moderate risk youth were significantly lower than high risk ; $F(2, 1444) = 7.74, p = .001$

Figures 7-9 provide the average service units by risk level for each category of service, after controlling for race and days on supervision.

Figure 7: Average Any Service Units by Risk Level

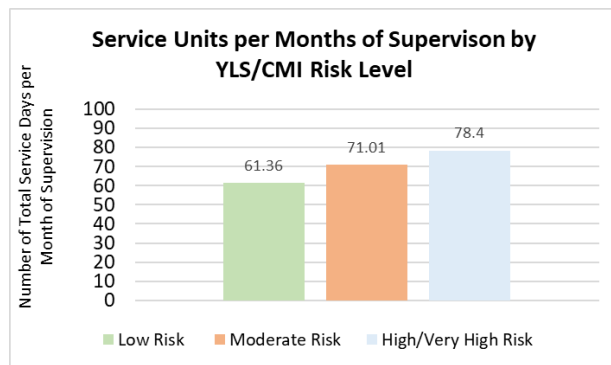


Figure 8: Average Risk- Reduction Service Units

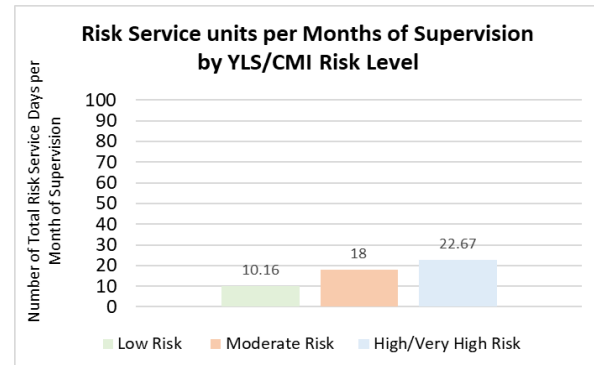
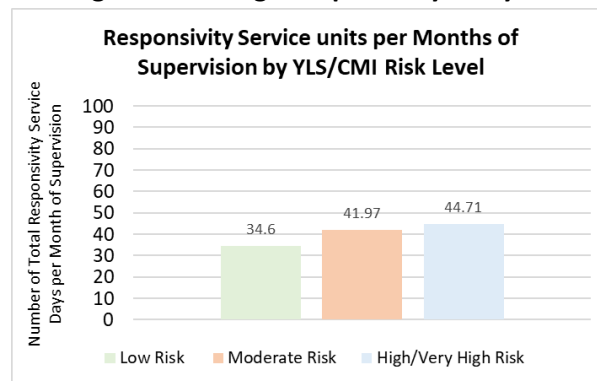
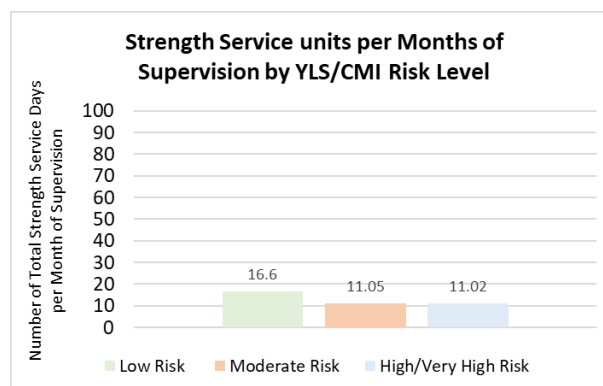


Figure 9: Average Responsivity- Only Service Units



Low risk youth received significantly higher dosages of strengths-based services than other youth; $F(2, 1444) = 16.46, p < .001$.

Figure 10: Average Strengths-Based Units by Risk Level



Does Service Dosage Differ by Disposition?

Whether youth received any of the above services was also tied to their most serious disposition. Disposition also is strongly associated with youths' risk levels, so we controlled for risk in this analysis. After controlling for race, supervision days, and risk, the following patterns emerged (see Figures 11-14):

- The rate of service dosage units per month significantly increased as disposition severity increased; $F(4,1432)=6.65, p < .001$)
- The rate of risk-reduction service units per month significantly increased as severity of disposition increased, but there was not an appreciable difference between those handled informally and those on consent decree; $F(4,1432)=10.99, p < .001$)
- The rate of responsivity-only service units per month significantly increased as severity of disposition increased, with youth in placement receiving significantly more responsivity units than any other bucket of service; ($F(4,1432)= 7.48, p < .001$)
- The rate of strength-based service units per month differed by disposition with informal youth receiving a higher dosage than youth on probation; $F(4,1432)=3.07, p=.016$

Figure 11: Any Service Units by Disposition

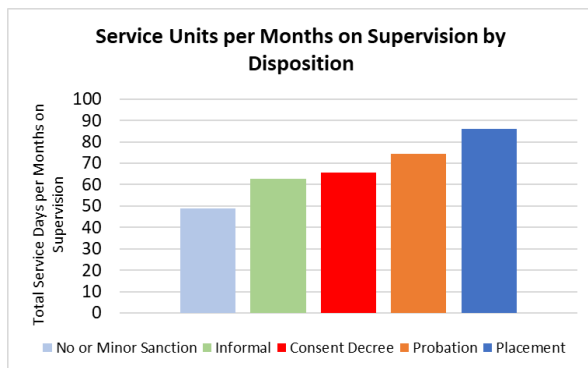


Figure 12: Risk-Reduction Service Units by Disposition

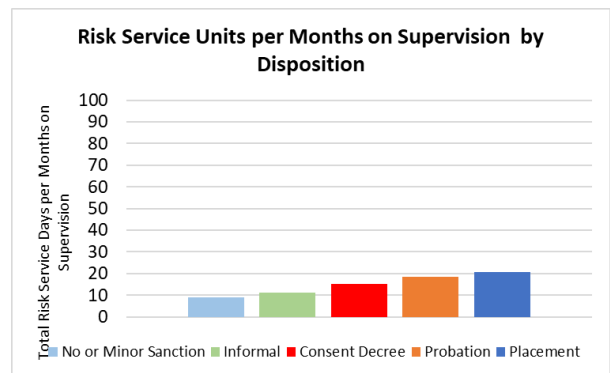


Figure 13: Strength-Based Service Units by Disposition

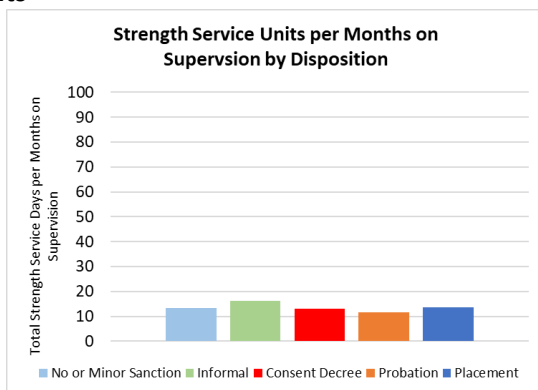
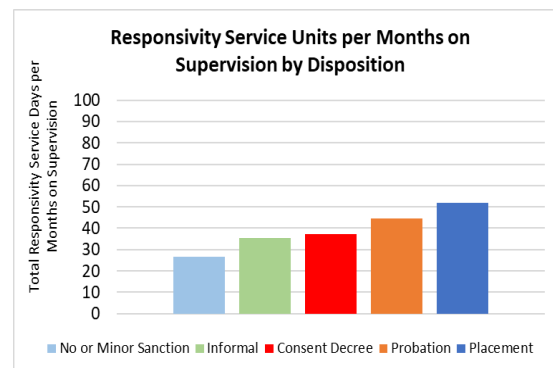


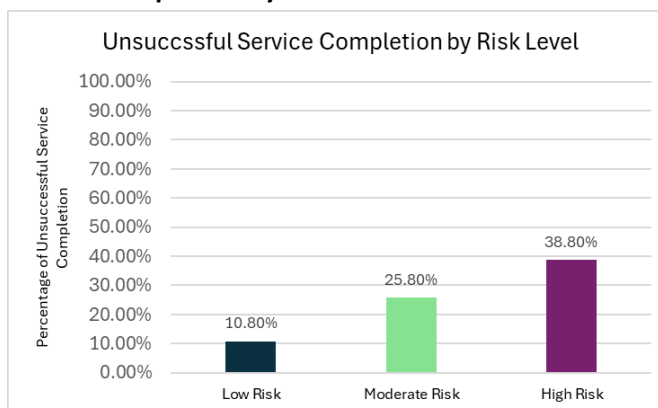
Figure 14: Responsivity-Only Service Units by Disposition



Successful versus Unsuccessful Service Completion

Among the youth who had data indicating whether their service(s) were not successfully completed ($n = 1,094$), 233 youth (21.3%) had at least one service marked as not successfully completed. A significantly higher proportion of high risk youth (38.8%) than other youth had at least one service unsuccessfully completed; $\chi^2 (2, N=1,094) = 57.41, p < .001$.

Figure 15: Unsuccessful Service Completion by Risk level



I. Have Services Been Effective for Reducing Post-Supervision Recidivism?

The short answer is 'no'. Our examination of receipt of risk-reduction or strengths-based services indicated that, in most instances, those who received these services had a greater likelihood of recidivating after supervision, sometimes violently, than those who did not receive any of these services.

Method: The method for examining this question is complex and requires taking many factors into account. In the absence of randomly assigning youth to receive certain services, examination of the impact of services on recidivism requires controlling for differences among youth with the greatest probability of receiving those services. We used a conservative, machine-learning approach called SuperLearner to create weights for each youth based on their probability of receiving risk or strengths-based services. This approximates random assignment by controlling for all the differences between youth who did and did not receive any services. We removed youth who received no sanction because few received any services and it was making our weighting unstable. We used all of the following correlates to the probability of youth receiving particular types of services in the creation of these weights: youths' risk level, disposition (as a proxy for level of system involvement), age, gender, race/ethnicity, sociodemographic status, offense severity, number of prior offenses, and whether the index offense was violent.

Result: Table 7 provides the hazard ratios for these effects. Significant hazard ratios above 1 indicate a higher likelihood of recidivism, with higher numbers meaning an even higher likelihood. The table shows youth who received any risk-reduction service had a significantly greater likelihood of any post-supervision recidivism and risk services did not influence violent recidivism. Strengths-based services significantly increased the likelihood of both types of recidivism, although the effects were smaller. Both are relatively small effects.

Because these findings were unexpected, we attempted several other analyses to attempt to explain the results:

- 1) An analysis using a traditional approach to propensity weighting produced the same pattern of results with larger effects.

- 2) Removing youth who spent any time in a placement (a group where peer contamination would presumably be highest) resulted in effects that were not as strong (risk services and any recidivism, HR = 1.61*) but were still significant. The only exception is strengths-based services did not predict violent recidivism for youth who never went to a placement.
- 3) Our attempt to examine whether there was an effect of dosage indicated the more risk or strengths service units youth received, the greater the likelihood of recidivism across the board.

Table 7: Influence of Receiving Services on Post-Supervision Recidivism

Service Type	Any post-supervision recidivism	Violent post-supervision recidivism
Any risk service received	HR = 1.74***	HR = 1.46
Any strengths service received	HR = 1.35*	1.28*

One explanation for the seeming iatrogenic effects of services is that only 16.6% of youth received services that would clearly be identified as evidence-based. Another potential explanation is that services are not being well-matched to the risk and protective factors that matter most for post-supervision recidivism.

J. Do Services Seem to be Following the Need Principle?

This study did not have the resources to examine the match between youths' risk factors (or protective factors) and services received at the individual youth level. However, comparing the most common services received by youth in this sample (Appendix Tables 5 and 6) to the risk and protective factors most strongly associated with violent recidivism permits some important observations.

- Some form of mental health counseling was by far the most common service received by moderate and high risk youth (43.6%). Several studies have shown these services are not effective for reducing recidivism (e.g., McCormick et al., 2017; Skeem et al., 2008).
- Personality/Behavior is the strongest predictor of violent recidivism after supervision. Only 13.2% of moderate and high risk youth received a cognitive-behavioral therapy based intervention (e.g., MST, FFT, CBT), which is the most effective method for addressing this risk area. Another 14.8% received Aggression-Replacement Therapy which is also promising for this need area. Youth more commonly received victim empathy training (31.1%), which is not effective for recidivism reduction. EPICS (32.5%) and Carey Guides BITS (16.6%) also were common and we are unclear about their effectiveness.
- Education/Employment may have been the best matched need area, with 37% of moderate/high youth receiving some form of vocational or job training or work placement. Education-related services were rare.

- Family Circumstances was another strong predictor of violent recidivism and close to 24% of moderate/high youth received some form of service in this area, primarily family counseling (11.7%) with few receiving FFT or MST.
- Attitudes/Orientation is another strong predictor of violent recidivism. Only 18.9% of youth received some form of attitude-related curriculum and 13.2% received a CBT-based program, both of which are a match to this area.
- Drug and alcohol-related services were more commonly used for moderate/high risk youth (34%) than any services directed at addressing risk factors (aside from Employment), and yet this area is the weakest predictor of violent recidivism for the majority of youth.
- With respect to protective factors, the most common strengths-based services received were those emphasizing job skills or work, which may have little impact on bolstering the protective factors most strongly influencing reductions in recidivism---Self-control, Self-efficacy, Social Supports, and Prosocial Engagement (work may increase this area).

K. Qualitative Observations on Challenges to Service Data Tracking and Recommendations

State 1 and the service module committee developed a comprehensive service screen for counties to enter services and track service data. As we worked with the Youth Protective Factor Study counties on quarterly service data quality assurance, the following common challenges emerged across all counties:

- Due to staffing challenges and heavy workloads, it was difficult for some to stay on top of updating service information for each youth. This was particularly true of service end dates and successful completion.
 - *Recommendation:* Implement a routine schedule for probation officers to update service data for their caseloads.
- Services received within placements or programs that provided an array of individualized services were particularly difficult for probation staff to track.
 - *Recommendation:* Programs (e.g., RAMP) and placements should be submitting progress reports or notes to the probation officers routinely. Probation could request these programs develop a format for these notes that clearly indicates services received and completed.
- The frequency with which youth attended each service was often missing. Therefore, the dosages in this study were based on the duration of each service as opposed to the number of times youth actually attended the service.
 - *Recommendation:* Probation offices that had a quality assurance team were the most equipped to enter service data. This approach requires financial resources, but the benefit is that probation officers can spend more time working with youth than doing paperwork or data entry.
- Programming service drop-downs at the county-level was a daunting task and will make it difficult for state 1 to extract and evaluate outcomes for specific services.
 - *Recommendation:* Develop a standard set of services that populate each county's LTMs while permitting the flexibility of entering other unique services.

We recommend all counties strive to enter at least the following information so that a) counties can monitor their service allocation, and b) state 1 may eventually evaluate individual services across the state:

- Service type and provider
- Start and end dates (measures length of service) – this means entering the actual start date rather than the referral date
- Some type of completion status (successful or not)
- Basic dosage

L. Key Takeaways/Recommendations for State 1 Related to Services

1. Generally, youth received a dosage of services aligned with their risk level and disposition. At the same time, 1 in 4 youth did not receive any services, primarily low risk youth, raising again the question of whether these youth could have received such support without justice involvement. At the other end of the spectrum, even though the difference was statistically significant, high risk youth did not receive substantially greater dosages of services than moderate youth. Given that higher risk youth are the most likely to reoffend, and to reoffend violently post-supervision, state 1 could explore strategies to further strengthen the targeting of services/dosage to those youth with the highest risk of reoffending.
2. Higher risk youth were less likely to receive strengths-based services than lower risk and there was little difference between moderate and high-risk youth. It's possible that lower risk youth were more likely to be involved in strength-based services than higher risk prior to their involvement in the justice system. Either way, given that protective factors are associated with reduced reoffending, state 1 should explore strategies to increase the dosage of right type of strength-based services received by higher risk youth.
3. Youth in placement received more services than other youth, but primarily more responsiveness-based services rather than risk or strengths-based services. Combined with the fact that one in five youth experienced placement overall, state 1 should explore to what extent youth are being placed for treatment rather than public safety reasons. Given the high costs and poor outcomes associated with all forms of placement compared to community-based treatment, state 1 might consider the need to develop more intensive, community-based/in-home behavioral health service alternatives.
4. Services are most effective when matched to individualized needs, targeting the risk/protective factors that matter most for predicting violent reoffending, are research-based, and when youth receive the necessary dosage of services and successfully complete their treatment goals. Study findings highlight potential opportunities for state 1 to strengthen its service continuum and use of services, including:
 - a. The most common services that youth received—including mental health counseling, drug and alcohol services, and victim awareness—don't target the risk factors that most predict long-term, serious reoffending (personality/attitudes/family). In contrast, fewer youth, including higher risk youth, received services such as CBT and family-therapy that target

- these risk factors. State 1 should review its continuum of services/providers and strengthen the statewide availability of services that target the most critical risk factors.
- b. Likewise, the strengths-based services that youth most receive are unlikely to affect the protective factors strongly associated with reductions in serious offending. State 1 can examine opportunities to connect young people to programs/opportunities that increase social supports, bolster youths' purpose/civic responsibility, and that enhance self-control.
 - c. State 1 has made great strides in promoting the use of evidence-based services and using tools such as the SPEG to promote service quality. State 1 can potentially build on these efforts by examining the services most used across counties; reducing reliance on service modalities that have less research support, such as drug/alcohol classes and victim empathy training; and exploring opportunities to expand capacity around services such as CBT, MST, FFT, and ART that have more robust evidence of effectiveness.
 - d. Service completion data is often unreliable, but based on study data, over 25% of moderate risk youth and almost 40% of higher risk youth had at least one service that was not successfully completed. These findings are consistent with challenges found in other states with ensuring higher risk youth engage with services and accomplish their treatment goals. State 1 should explore barriers to service completion for youth, families, and providers and potential opportunities, incentives, and supports that could improve service completion rates.

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State 1 Plan Appendix

Table 5. Frequency of Services Received by Youth with Any Services in State 1 Counties (n = 1502)

Risk-Reduction Services:	Freq youth	% of sample
Aggression Replacement Training (ART) *	153	10.2
Alternative Schools	16	1.1
Anger Management	50	3.3
Attitude or Behavior-Related Curriculum - Other ((i.e. Young Offenders Program, Thinking Errors)	189	12.6
Carey Guide - BITS	155	10.3
Carey Guide – Substance abuse	7	5.9
Carey Guides - Criminogenic Needs	89	5.9
Cognitive Behavioral Therapy*	54	3.6
Drug & Alcohol - Residential (short or long)	38	2.5
Drug & Alcohol Counseling – individual, group, outpatient	221	14.7
Dialectical Behavior Therapy *	6	0.4
Drug & Alcohol - Education/Prevention Classes	84	5.6
EPICS curriculum	314	20.9
Family Counseling	123	8.2
Family Preservation	21	1.4
Family Service - Other (I.e. Healthy Relationships)	86	5.7
Firesetting/Firestarter Treatment	6	0.4
Functional Family Therapy *	5	0.3
Gang Intervention Program	3	.2
Multisystemic Therapy*	62	4.1
Offense-Specific Classes (e.g., shoplifting class)	27	1.8
Rational Emotive Therapy	2	0.1
Secure Behavioral Programming	22	1.5
Secure Treatment Facility	64	4.3
Sex Offender Counseling	66	4.4
Sex Offender Counseling – Group/classes	15	1.0
Sex Offender Treatment - Community	20	1.3
Sex offender treatment - residential	9	.6
Skill Development Curriculum (I.e. Casey Life Skills, Life Skills Training)	49	3.3

Victim Awareness/Empathy Training	383	25.5
Victim Mediation Activities	4	.3

* Denotes evidence-based programs

Strengths-Based Services:	Freq youth	% of sample
Carey Guides - Strengths	13	0.9
Employment - Other (e.g. Internships/Assistantship)	1	0.1
Faith-Based Mentoring Program	38	2.5
Independent Living Program/Housing	4	.3
Job Training Skills (eg. Job Corp, Workforce Readiness Training)	51	3.4
Leisure/Recreational - Structured	121	8.1
Mentoring/Positive Role Model	59	3.9
Peer Group	29	1.9
Prosocial Skills Training (specify)	21	1.4
Prosocial Sport-Related Activity (specify)	54	3.6
Ravenhill's Accountability and Mentoring Program (RAMP)	8	0.5
School-based organized extracurricular activity/sports	114	7.6
Social Skills Training	18	1.2
Strengths-based Other (e.g. Wellness Programs, Religious Services)	31	2.1
Vocational Program/Training (hard skill building)	81	5.4
Volunteer Work (not court mandated)	4	0.3
Work Placement	351	23.4

Responsivity-Only Services:	Freq youth	% of sample
Aftercare	139	9.3
Case Management	101	6.6
Cultural/Ethnic Services (Black Chronicles, indigenous/tribal)	41	2.7
Educational Services - Other (e.g. special education program, tutoring, PREP)	83	5.5
Foster Care	7	0.5

General Counseling	35	2.3
Group Home - Mental Health	13	0.9
Medication Management	91	6.1
Mental health - Other (e.g. In home services)	25	1.7
Mental health Inpatient or Partial Hospitalization	20	1.3
Mental health counseling – individual, group, outpatient	509	33.8
Residential Treatment Facility - Psychiatric	2	0.1
Responsivity Family Service - Other (e.g. Family wrap around services, Emergency Shelter Care-Family)	9	0.6

*Grey shading indicates the most common services in the tables

Table 6: Frequency of Services Received for Moderate and High Risk Youth ONLY (n = 803)

	Freq youth	% of sample
Risk-Reduction Services:		
Aggression Replacement Training (ART) *	119	14.8
Alternative Schools	13	1.6
Anger Management	33	4.1
Attitude or Behavior-Related Curriculum ((i.e. Young Offenders Program, Thinking Errors)	152	18.9
Carey Guide - BITS	133	16.6
Carey Guide – Substance abuse	7	0.9
Carey Guides - Criminogenic Needs	76	9.5
Cognitive Behavioral Therapy*	48	6.0
Drug & Alcohol - Residential (short or long)	27	3.4
Drug & Alcohol Counseling	173	21.5
Dialectical Behavior Therapy *	6	0.7
Drug & Alcohol - Education/Prevention Classes	68	8.5
EPICS curriculum	261	32.5
Family Counseling	94	11.7
Family Preservation	20	2.5
Other Family Service (e.g. Healthy Relationships)	73	9.1
Firesetting/Firestarter Treatment	5	0.6
Functional Family Therapy *	4	0.5

Gang Intervention Program	3	0.4
Multisystemic Therapy*	49	6.1
Offense-Specific Classes (e.g., shoplifting class)	22	2.7
Rational Emotive Therapy	2	0.2
Secure Behavioral Programming	20	2.5
Secure Treatment Facility	46	5.7
Sex Offender Counseling	28	3.5
Sex Offender Counseling – Group/classes	8	1.0
Sex Offender Treatment - Community	3	0.4
Sex offender treatment - residential	6	0.7
Skill Development Curriculum (e.g., Life Skills Training)	38	4.7
Victim Awareness/Empathy Training	250	31.1
Victim Mediation Activities	0	0

* Denotes evidence-based programs

Strengths-Based Services:	Freq youth	% of sample (n=803)
Carey Guides - Strengths	12	1.5
Other Employment (e.g. Internships/Assistantship)	0	0
Faith-Based Mentoring Program	21	2.6
Independent Living Program/Housing	4	0.5
Job Training Skills (eg. Job Corp, Workforce Readiness Training)	44	5.5
Leisure/Recreational - Structured	41	5.1
Mentoring/Positive Role Model	43	5.4
Peer Group	21	2.7
Prosocial Skills Training (specify)	14	1.7
Prosocial Sport-Related Activity (specify)	17	2.1
Ravenhill's Accountability and Mentoring Program (RAMP)	8	1.0
School-based organized extracurricular activity/sports	36	4.5
Social Skills Training	15	1.9
Other Strengths-based (e.g. Wellness Programs, Religious Services)	14	1.7

Vocational Program/Training (hard skill building)	67	8.3
Volunteer Work (not court mandated)	2	0.2
Work Placement	153	19.1

Responsivity-Only Services:	Freq youth	% of sample (n = 803)
Aftercare	53	6.6
Case Management	48	6.0
Cultural/Ethnic Services (Black Chronicles, indigenous/tribal)	33	4.1
Educational Services - Other (e.g. special education program, tutoring, PREP)	51	5.5
Foster Care	6	0.7
General Counseling	25	3.1
Group Home - Mental Health	10	1.2
Medication Management	65	8.1
Other Mental health (e.g. In home services)	19	2.4
Mental health Inpatient or Partial Hospitalization	12	1.5
Mental health counseling - individual	350	43.6
Residential Treatment Facility - Psychiatric	1	.1
Other Responsivity Family Service (e.g. Family wrap around services, Emergency Shelter Care-Family)	9	0.4

*Grey shading indicates the most common services in the table

APPENDIX E: STATE 2: PROSPECTIVE SAMPLE STATE REPORT

The Youth Protective Factors Study: A Strategy for Promoting Success Based on Risks, Strengths, and Development

A. Background

The Youth Protective Factors Study is an unprecedented multistate, multiyear examination of what risk and protective factors matter most when it comes to reoffending - particularly for violent and other person offenses - for youth ages 10 to 23 who are involved in the youth justice (JJ) system. The study also was designed to examine how to maximize case planning and service use, while preserving public safety and enhancing positive youth outcomes by examining what types of services are associated with the greatest reductions in recidivism. The study asked the following key questions:

- Which risk factors best predict violent recidivism, for youth of different ages, after youth are no longer involved with the youth justice system?
- Which protective factors are most strongly associated with reductions in violent recidivism, for youth of different ages, after youth are no longer involved with the system?
- What services—risk reduction and/or strengths enhancing—are most effective in reducing violent recidivism, and how do these vary for youth of different ages?

B. State 2 Study Sample Description

The original state 2 prospective sample comprised 555 youth eligible for the YASI according to the policies in each of the five participating counties: County 32, County 44, County 59 and County 68. Five of the 555 cases had to be removed because they were lost at follow-up (e.g., transferred to adult court, relocated out of state/county), resulting in a final sample size of 550. Only a small number of youth (n=173) completed the YASI full assessment. Of the total sample of 550 youth:

- 244 (44.4%) completed both a protective factor survey and the YASI Pre-Screen,
- 274 (49.8%) had the YASI Pre-screen only,
- 6 (1.1%) had the protective factors survey only, and
- 26 (4.7%) did not get either during the study period for various reasons (e.g., contesting charges, counseled and closed quickly, JIPS order cases often missed).

Table 1 displays the demographic characteristics of the full sample.

Table 1: Sample Characteristics

	Percent (%)	Count
Sex		
Boys	65.1%	358
Girls	33.3%	183
Missing	1.6%	9
Race/Ethnicity		

Non-Latinx White	57.8%	318
Non-Latinx Black	16.9%	93
Latinx	10.7%	59
Other/Unknown	14.5%	80
Any placement during the study	6.7%	30
Offense/Prior Offenses		
Current referral for violent offense	31.6%	174
No prior referrals	74.9%	412
Prior referral for violent offense	7.3%	40
Most Serious Disposition for Current Referral		
No/Minor Sanction	37.5%	206
Deferred Prosecution	34.9%	192
Consent Decree	5.5%	30
Community Supervision	14.0%	77
Transferred to adult court	0.2%	1
Not yet disposed	8.0%	44
	Mean	SD
Number of prior referrals	0.48	1.39
Age (years)^a	14.23 (Range: 9-17)	1.63
Social Deprivation Index (SDI)^a	37.67	21.78

^a Age was calculated at youths' start date—the date of the initial YASI or protective factor survey, whichever came first, or the date of the referral for those who did not receive either.

^b Social Deprivation Index (SDI) is composite measure of area level deprivation and a proxy for socio-economic status. Scores can range from 1 to 100 with higher scores indicating greater deprivation

Placements: Just under 7% (n =37) of youth spent any time in a placement at some point during the study and none of these were the first disposition. We defined placements as group homes, shelters, post-adjudication detention, residential treatment facilities, and psychiatric hospitalizations. The majority of the 37 placements were shelter care stays (45.83%), with 29.17% going to short-term detention facilities, 20.83% going to residential treatment facilities, and 2.08% going to a group home.

Follow-up Information

We tracked all supervision and service activities for youth from their *start date* (date of the first YASI or protective factor survey, whichever came first, or the time of their first referral for those with neither) to the end of any involvement with the youth justice agency (including any extensions due to new offenses before the original supervision was completed), or the end of the study, whichever came first. Supervision includes deferred prosecution, probation, detention or a combination of any of the above.

Youth in this sample spent a median of 259 days under supervision (range from 0 days for those counseled and closed to 965 days) between the study start date and end of the study period, or when the date any supervision ended, whichever came first.

We tracked recidivism after supervision for the 486 youth who completed their youth justice involvement during the study, with post-supervision time ranging from 0 to 938 days (Md= 523).

Although it was not the main outcome variable for the study, we also report recidivism occurring during supervision for individuals who spent at least 7 days under supervision after their study start date (n = 455).

C. Risk Factor Descriptives

YASI Inter-Rater Reliability

To check the inter-rater reliability of youth workers on the YASI, the research team provided them with three standardized case vignettes over a span of four months (March – June 2022). We calculated intraclass correlation coefficients (ICCs) for each youth worker for every YASI domain and an artificial YASI total score. The ICC is the gold-standard index for measuring rater reliability. The ICCs for each of the youth workers were provided to each site as well as overall feedback. PO's had to achieve a score of .60 or above to be considered in the good to excellent reliability range. The domain with the most trouble for youth workers was the mental health domain. Since this is not a risk area, we weighted this domain lower than the others. Youth workers were considered to have 'poor performance' if they were not in the acceptable reliability range on two or more domains, and were considered 'questionable' if they had low reliability on only one domain (excluding the mental health domain). Among the youth workers with known reliability (n = 38) – only 5.3% had poor or questionable reliability, 71.1% had good reliability, and 23.7% were unknown because they did not complete the reliability study.

Risk Levels and Need Domains

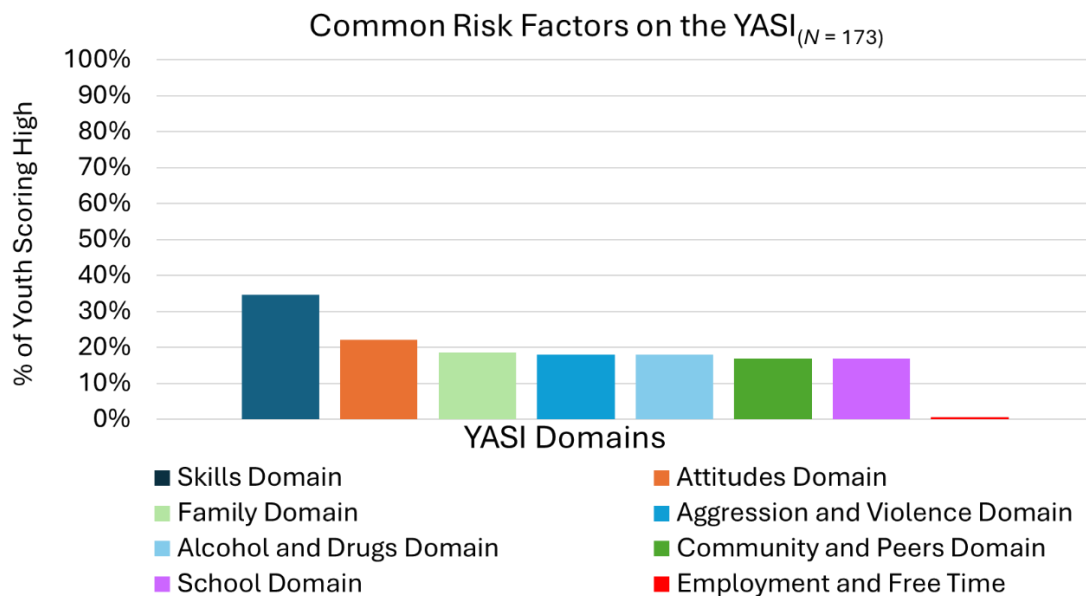
Most (94.2%) youth in the sample had an initial YASI- Prescreen (n = 518). Table 2 provides the proportion scored at each risk level, with the highest proportion being low risk (46.5%). The researchers only received full assessment data for **33.4%** of youth who had a YASI (**n =173**). Ideally, all Moderate and High-Risk youth would have received a full assessment, but the full YASI was completed for only 67.7% of High-Risk (n = 42) and 43.7% of Moderate-Risk (n = 94) youth. This may be due to charges being dismissed or withdrawn by the DA. However, 15.4% of Low-Risk youth (n = 37) were administered a full assessment (see Table 2).

Table 2: YASI Risk Level and Full Assessment Data

	YASI Risk Level (n = 518)	Full Assessment (n = 173)
Low	46.5% (241)	15.4% (37)
Moderate	41.5% (215)	43.7% (94)
High	12.0% (62)	67.7% (42)
Total	100% (518)	100% (173)

We were only able to examine the individual risk domains for the 173 youth that had a full assessment, out of the 518. As such, we calculate the percent of youth with the most common risk domains out of both the 173 youth and the full sample of 518 so as not to distort the percentages. By ‘most common risk domains’, we mean the domains where the most youth scored high (not necessarily the domains that most strongly predicted reoffending:

- Skills - 34.7% of the 173 youth with a full assessment; 11.6% of those w/a YASI prescreen
- Attitudes - 22.0% of the 173 youth with a full assessment; 7.3% of those with a YASI prescreen
- Family- 18.5% of the 173 youth with a full assessment; 6.20% of those with a YASI prescreen

Figure 1: % Scoring High on YASI Risk Factor Domains Among The n = 173 Youth With a Full Assessment

Most Serious Dispositions by Risk Level

As shown in table 3, consistent with the risk principle, among youth with both a YASI- Prescreen and disposition data (n = 478), Low-Risk youth were most likely to receive no or minor sanctions, and High-Risk youth were most likely to receive probation; $\chi^2 (6) = 54.97, p < .001$. The most common disposition for each risk category was as follows:

- Low-Risk youth = No or Minor Sanction (49.3%)
- Moderate-Risk youth = Deferred Prosecution (39.1%) and No or Minor Sanction (38.1%)
- High-Risk youth = Probation (46.3%)

Table 3: Most Serious Disposition Received by Youth at Each YASI Risk Level (N = 478)

YASI Risk Level	N	No or Minor Sanction %(N)	Deferred Prosecution %(N)	Consent Decree %(N)	Probation %(N)
Low	227	49.3% (112)	38.3% (87)	5.7% (13)	6.6% (15)
Moderate	197	38.1% (75)	39.1% (77)	5.1% (10)	17.8% (35)
High	54	24.1% (13)	25.9% (14)	3.7% (2)	46.3% (25)
Total					
Dispo		41.8% (200)	37.2% (178)	5.2% (25)	15.7% (75)

There were significant differences in disposition by county such that, relative to the other NIJ counties:

- County 32 and County 59 had significantly higher rates of No or Minor Sanction, and
- County 44 and County 68 had significantly higher rates of Deferred Prosecution than the other counties.

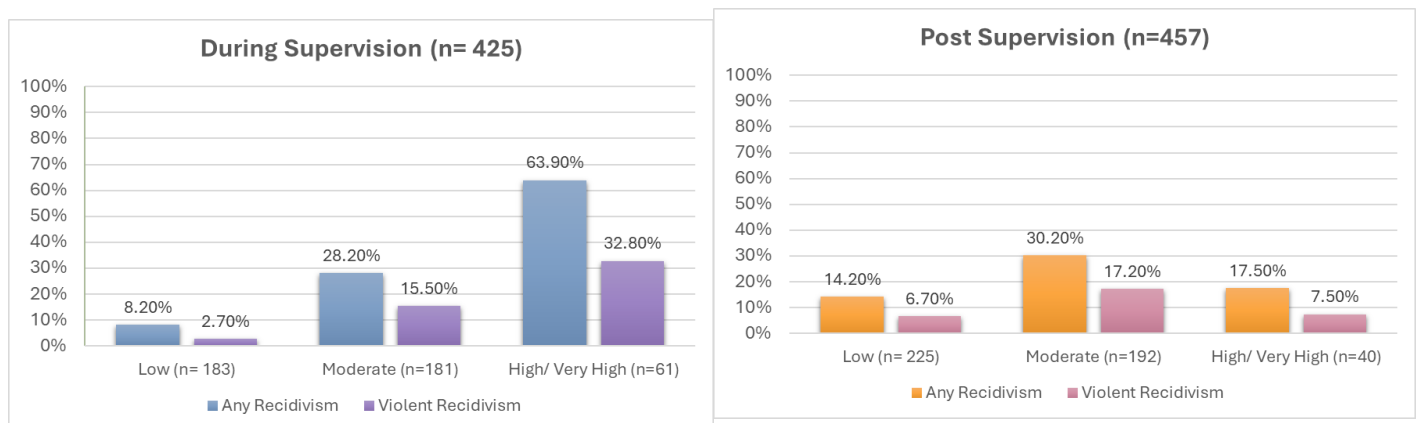
D. Recidivism

We defined recidivism as new petitions after the initial referral. The recidivism rates for this sample were:

- During supervision (n= 455), the rate of any recidivism was 23.5% (n= 107) and 12.1% (n= 55) for violent recidivism over the median 259 days spent on supervision for this sample.
- After supervision (n= 486), the rate of any recidivism was 20.4% (n= 99) and 10.7% (n= 52) for violent recidivism over the median 523 days youth were tracked post-supervision.

Thirty youth were missing a risk level in the during supervision group, and 29 were missing a risk level in the post-supervision group. For the remaining youth, risk was significantly associated with recidivism in the expected direction during supervision (any- $\chi^2(2) = 78.45$, $p < .001$, violent - $\chi^2(2) = 40.46$, $p < .001$). However, post-supervision, although risk was significantly associated with recidivism (any- $\chi^2(2) = 16.20$, $p < .001$, violent - $\chi^2(2) = 12.16$, $p = .002$), the moderate risk youth had the highest recidivism rates (see Figure 2). In part, this may be because there were only 50 high-risk youth post-supervision in this sample.

Figure 2: During vs. Post-Supervision Recidivism Rates by Risk Level



What Risk Factors Most Strongly Predicted Recidivism?

We used each youths' initial YASI to predict 'post-supervision' violent recidivism, while controlling for the length of time youth had an opportunity to reoffend (see recidivism methods in Appendix). Our focus was on recidivism after supervision to avoid the influence of any current supervision strategies. The goal was to capture the likelihood that youth reoffend, *after* a period of supervision and services in these agencies.

Our power to detect significant effects in these analyses was small. We only had risk levels on the YASI domains for the 173 youth who received the full YASI assessment. After removing those without any post-supervision follow-up time and missing demographic information, we were left with a sample of only 135 youth.

After controlling for youths' baseline demographic characteristics (i.e., age, gender, race/ethnicity), the strongest predictor of violent recidivism after-supervision were:

- **Community & Peers** (HR=2.00 CI[1.27, 3.16], $p < .01$)
- **School Problems** (HR=2.00 CI[1.27, 3.16], $p < .01$)

Other strong predictors of violent recidivism after supervision that had smaller effects were:

- **Family** (HR=1.36 CI[1.03, 1.80], $p < .01$), and
- **Alcohol and Drugs** (HR=1.19 CI[1.11, 1.28], $p < .001$).

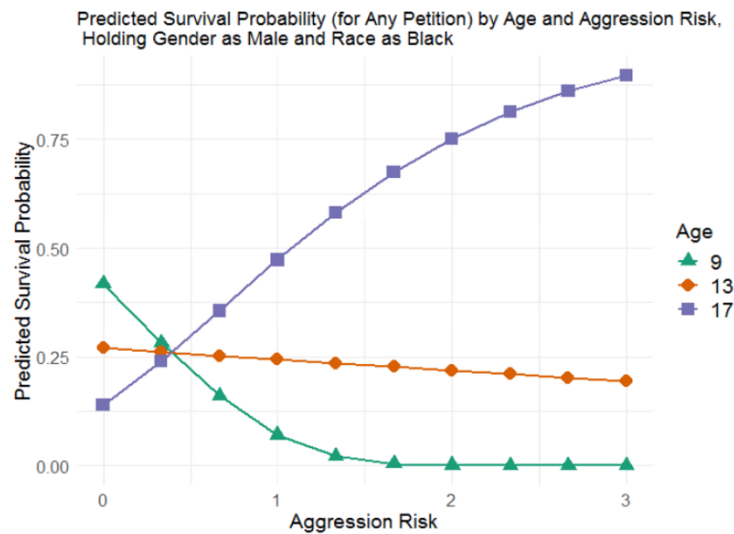
Somewhat surprisingly, the only domain that predicted any type of recidivism post-supervision (includes violent petitions) was Family (HR=1.31 CI[1.15, 1.49], $p < .001$).

Does the Strength of Risk Factors Depend on Youth's Age?

We attempted to examine whether the strength of the prediction of risk factors for violent recidivism depended on youths' age (i.e., interaction effects). However, due to the relatively small sample of youth with both a full YASI assessment and post-supervision time coupled with the very low base rate of violent recidivism and not having score-level data for the YASI full assessment (we used risk levels instead), the analyses were unreliable. Instead, we report only findings for any post-supervision recidivism.

There was also an interaction by age for the importance of the **Aggression domain** in predicting any recidivism post-supervision, such that younger youth were more vulnerable to aggression risk, having higher recidivism rates as aggression levels increased (see Figure 6, which represents the survival probability for any recidivism; HR for interaction =0.81 CI[0.69, 0.96], $p < .05$).

Figure 6: Survival Probability by Age and Aggression Risk



E. Protective Factors

Qualitative Observations on Strengths and Challenges to Protective Factor Survey Administrations

Out of the 550 youth in our sample, 300 (54.6%) who were eligible for a PF survey did not receive one. For a few cases, this was due to youth declining to take the survey ($n = 39$, 7.1%) or cognitive/language challenges ($n = 17$, 3.1%). For the majority of cases ($n = 244$; 44.4%), reasons for missing surveys as reported by Youth workers were transfers or charges being withdrawn/dismissed shortly after the YASI was completed. Many of the youth who received consent decree or deferred prosecution dispositions were not administered the survey.

Despite the 54.6% rate of missing protective factor surveys, the counties did a good job of obtaining surveys for a representative sample of youth. There were no significant differences in youths' age, risk level, gender, or race between those who did and did not get the protective factor survey. Nonetheless, this very small sample of protective factor surveys ($n = 250$) affects our ability to draw strong conclusions.

Protective Factor Survey Descriptives

After removing youth who did not appear to have valid protective factor surveys, the final sample of youth for these analyses was 243 (44.2%). Because the protective factor measures do not have cutoff scores that distinguish high from low scorers, particularly in youth justice samples, we used receiver operating characteristic curves to identify the score on each scale that best discriminated the group of youth with 15% or less recidivism from those with greater likelihoods of reoffending.

We used those cut-off scores to describe the most common protective factor domains among youth who received a survey (see Figure 3). The domains with 50% or more youth scoring above the cut-off scores in state 2 were:

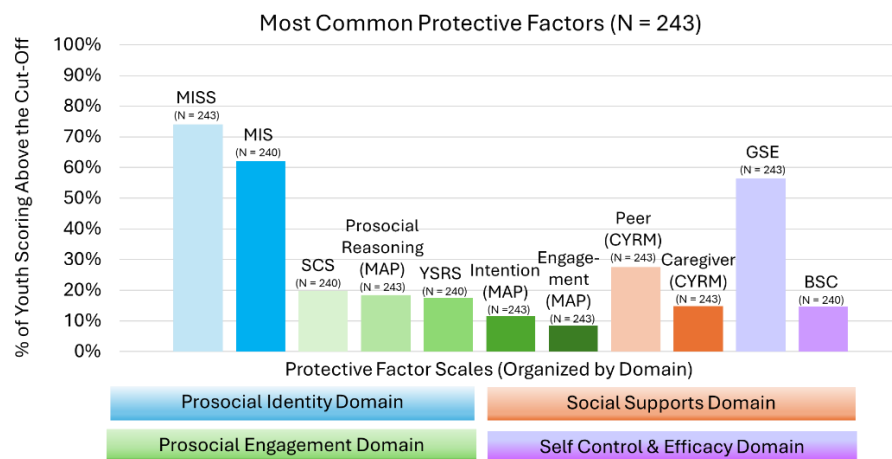
- Prosocial Identity (MISS: 74.1%; MIS: 62.1%)
- Self-Efficacy (GSE: 56.4%)

The least common protective factor domain in state 2—was:

- Prosocial Engagement - Adolescent Purpose -engagement scale = 8.6%.

It's important to note the %'s in Figure 3 may not be generalizable to state 2 youth referrals generally since only half the sample is represented.

Figure 3: Most Common Protective Factors within the Youth Sample



What Protective Factors Most Strongly Predicted Recidivism?

Like the risk domain analyses, we used youths' protective factor surveys to predict 'post-supervision' violent recidivism, while controlling for the length of time youth had an opportunity to reoffend. Our power to detect significant effects in these analyses was also small, having only 218 youth with a protective factor survey, post-supervision time, and all the necessary demographic data.

After controlling for youths' baseline demographic characteristics (i.e., age, gender, race/ethnicity), the only predictor of reductions in recidivism after-supervision was:

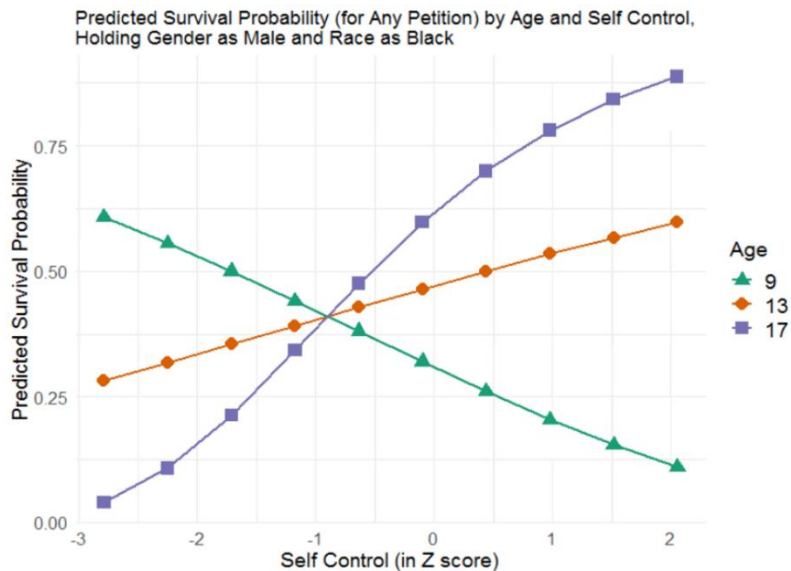
- **Self-control**, which predicted reductions in both violent (HR=0.66 CI[0.51, 0.84], $p < .001$) and any recidivism (HR=0.71 CI[0.52, 0.98], $p < .05$)

Surprisingly, as scores on our measure of Prosocial Support from Peers (HR=1.29 CI[1.04, 1.59], $p < .05$) and one measure of Prosocial Engagement (Inventory of Involvement) (HR=1.10 CI[1.02, 1.19], $p < .05$) increased, there were slight increases in violent recidivism. This is the opposite of what would be expected and is even more surprising given Peers and Community were one of the most predictive risk domains for violent recidivism.

Does the Strength of Protective Factors Depend on Youth's Age?

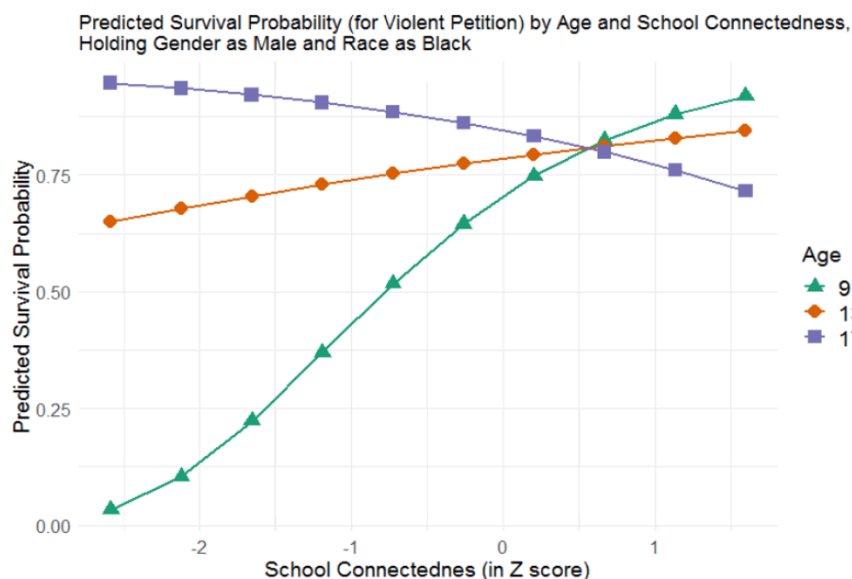
The influence of two protective factors on reductions in any recidivism after supervision differed based on youths' age. First, **Self-Control** (HR for interaction =0.88 CI[0.81, 0.96], $p < .01$) strongly protected against any recidivism for older youth and was less protective for younger youth (see Figure 7). Second, **Self-Efficacy** (HR for interaction =0.87 CI[0.81, 0.94], $p < .001$) followed a similar pattern, such that there was a protective effect on any recidivism post-supervision for older youth but it was less protective for younger youth.

Figure 7: Survival Probability by Age and Self-Control



Conversely, **Connectedness to School** (HR for interaction = 1.16 CI[1.04, 1.29], $p < .01$) showed the opposite pattern (see Figure 8). This had a larger protective effect against violent and any recidivism for younger youth and was less protective for older youth.

Figure 8: Survival Probability by Age and School Connectedness



F. What Matters for Predicting Violent Recidivism: Risk Factors, Protective Factors, or Both?

The answer to what matters more for youth recidivism, risk or protective factors, in this small sample of relatively young youth was risk. The YASI risk level significantly predicted both violent (HR=1.16 CI[1.34, 1.93], $p < .001$) and any recidivism HR=1.42 CI[1.15, 1.75], $p < .001$). The addition of protective factors examined in this study did not add to this prediction, however, results are tenuous due to the small sample size for youth with a protective factor survey.

G. Key Takeaways/Recommendations for State 2 Related to Risk and Protective Factors

1. For the study counties, youth referred to court services were 75% first-time offenders, half were 14 and under including 17% who were 12 and under, and 47% were assessed as low risk. For all youth referred, 42% received no or minor sanction and another 43% received a deferred prosecution or a consent decree. Additionally, as described in more detail below, half of all referred youth received no services. Taken together, these findings—along with research on the harms caused by formal system processing—support the need for state 2 to explore alternative pathways for youth and families to obtain needed services/supports outside of an arrest and the juvenile justice system.
2. The full YASI was only completed for 44% of moderate risk and 68% of high-risk youth. At the same time, 38% of moderate risk youth and 25% of high-risk youth received no or minor sanctions only. While youth workers may not control some of these decisions (e.g. prosecutor dismissal), it's important to explore YASI assessment practices to ensure moderate and high-risk youth receive a full assessment to inform diversion, service, and disposition decisions. This is particularly the case given the unexpectedly high recidivism rates for moderate risk youth, suggesting these youth may not be receiving the services/oversight they need to reduce their risk of reoffending.
3. Youth's most common risk factors—skills, attitudes, and families—were not the domains that most strongly predicted reoffending, which included community/peers and school problems. At the same time, the risk factors and protective factors that most strongly predicted reoffending varied by age, with aggression mattering more for younger youths' recidivism and school connectedness being more protective. Given that state 2 serves a younger cohort of youth than most states due to its low ages of minimum and upper juvenile court jurisdiction, coupled with the frequency of referrals for youth 12 and under, court services staff will need to be particularly focused on individualized, developmentally distinct approaches to case planning and services for different youth. Likewise, communities will need to invest in and build service capacity aligned with these needs so youth can be matched with the right services.

Specifically, in most states, we would recommend prioritizing services that address aggression, skills, attitudes, and Family. However, for WI, it seems emphasis should generally go towards interventions focused on peers, school and family unless the age of jurisdiction changes. Younger youth may require a more concerted focus on Aggression and Attitudes.

4. State 2 should consider the utility of adopting a streamlined, modified version of the protective factor survey concentrated on the protective factors most associated with reduced reoffending for state 2 youth—self-control, self-efficacy and school connectedness at the minimum.

H. Service Data Descriptives

Researchers tracked all services the youths' attended from each youth's study start date to the end of their JJ involvement, or end of the study period (1/31/2024), whichever came first (Md = 259 days follow-up). We calculated each youth's number and dosage of services.

Of the 550 youth cases, 294 (53.5%) did not receive any services during the study period. Relative to youth who received services, those who did not receive any tended to:

- Be lower risk; $\chi^2 (2) = 6.34$ $p = .042$
- Received No or only Minor Sanctions ; $\chi^2 (2) = 6.95$, $p = .031$
- Be in County 68; $\chi^2 (4) = 13.67$ $p = .003$
- Older in age $r = -0.09$, $p = 0.03$

There were no statistically significant differences in those who received services by gender or race.

NOTE: All descriptives and analyses in this section were based on the 256 cases with some service data. Unfortunately, this small sample does not permit reliable analyses to examine whether services had an impact on recidivism. Instead, we report descriptive statistics here.

Services Most Commonly Received

The percentage youth out of the 256 who received any risk, responsivity and strengths-based services youth were:

- 19.9% Risk-reduction service
- 30.9% Strengths-based service
- 62.5% Responsivity-only services

Table 5 in the Appendix provides the frequency of specific services within each of these buckets that were received by the 256 youth. Very few youth received risk-reduction services. The services most commonly received were:

- Mental health counseling (individual, group, or outpatient = 46.9%) – Responsivity
- Medication Management (15.2%)- Responsivity
- Mentoring/Positive Role Model (12.9%) – Strengths-based
- Work Placement (12.1%)- Strengths-based
- Prosocial Sport-Related Activity (specify) (10.5%)- Strengths-based

Table 6 provides the counts and percents of services received by only the moderate and high risk youth.

Only 1.6% of all youth received what would be defined as evidence-based programming (see Table 5 in the Appendix).

Service Dosage

Overall, youth (n = 256) received the following dosage units of services per month of supervision:

- Any services—median = 20.20 units (0 to 228.73)
- Risk-reduction services—median = 0 units (0 to 53.18)
- Strengths-based services—median = 0 units (0 to 71.66)
- Responsivity-only services—median = 7.20 units (0 to 141.8)

Among youth who received any services, after controlling for the amount of time youth spent on supervision, there was some variability in the dosage of services received based on certain youth characteristics:

- Youth receiving no or only minor sanctions received less service dosage units per month on supervision compared to deferred prosecution and probation; ($F(2, 236)=7.215, p<.001$)

There were no statistically significant differences in the dosage of services received based on youths' age, gender, risk level, or race after controlling for length of supervision. There also were no significant county-based differences in the dosages of services after controlling for gender, race, age, youth's risk levels, disposition, and length of supervision.

Is Service Dosage Following the Risk Principle?

The short answer is 'no'. Figure 7 displays the median dosage units spent in a service per month on supervision by risk level, after controlling for disposition and length of supervision (marginal means are reported below – see figures 9 to 12). Low risk youth may appear to be receiving lower dosages of services than moderate and high-risk youth; however, there was not a significant difference in dosage between the risk levels.

Figure 9: Average Any Service Units by Risk Level

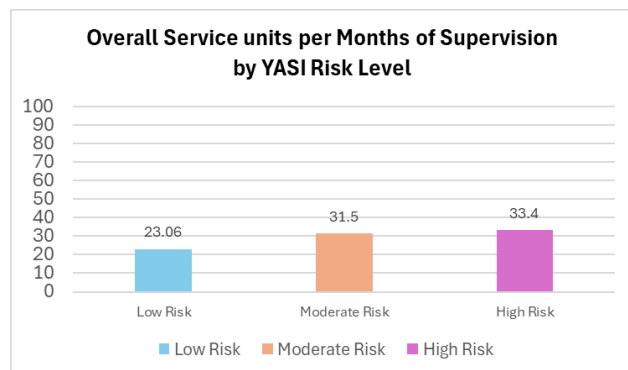


Figure 10: Average Risk-Reduction Service Units

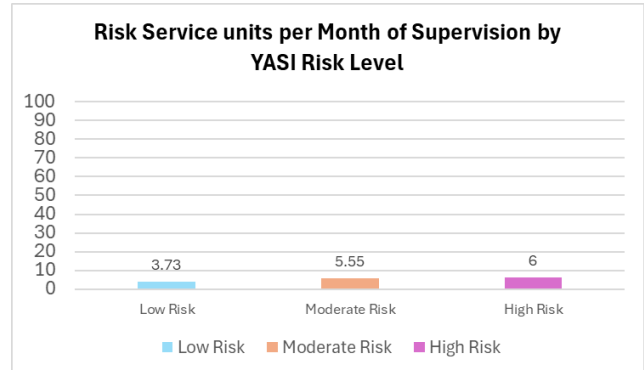


Figure 11: Average Responsivity- Only Service Units

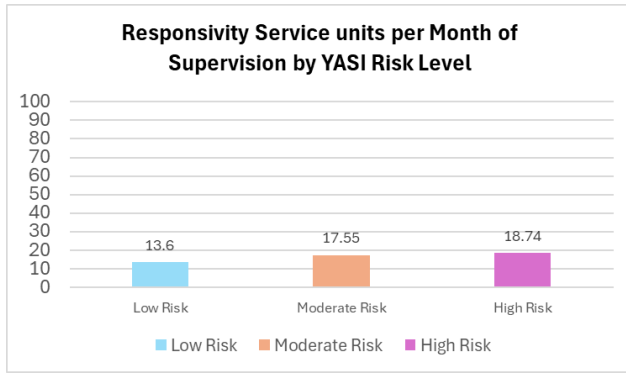
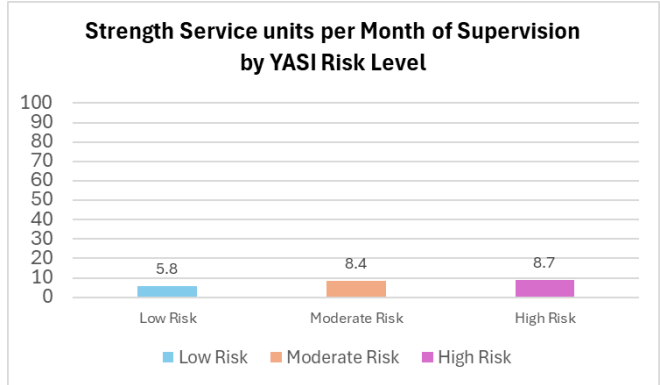


Figure 12: Average Strengths-Based Service Units



Does Service Dosage Differ by Disposition?

Whether youth received any types of services was tied to their most serious disposition somewhat for any, strengths-based and responsivity services, but only when comparing those with minor sanctions to other forms of dispositions. There was no difference in the dosage of risk-reduction services by disposition and youth on deferred prosecution received roughly the same dosage as those on probation or consent decree.

Disposition is strongly associated with youths' risk levels, so we controlled for risk in this analysis. After controlling for time on supervision, and risk level, there were significant differences in service dosage units by disposition. However, as shown in Figures 13 to 15, this was only because no/minor sanction youth had few services. There was no appreciable difference between those handled informally (deferred prosecution) and those on community supervision (includes consent decrees); $F(2, 228) = 6.04, p = .003$

- The rate of dosage units for any services ($F(2, 228) = 6.04, p = .003$), strength-based services ($F(2, 228) = 4.54, p = .012$), and responsivity-only services ($F(2, 228) = 3.04, p = .05$) was significantly lower for no/minor sanction youth than those with other dispositions.

Figure 13: Overall Service Units by Disposition

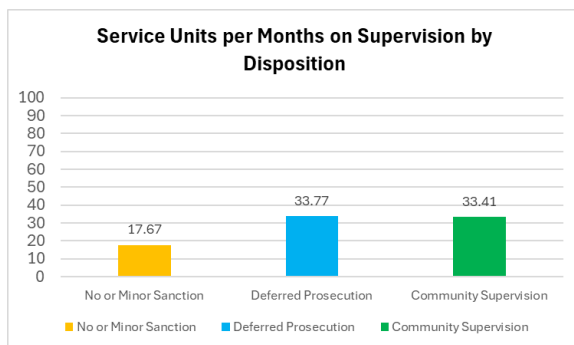


Figure 14: Strength-Based Services Units by Disposition

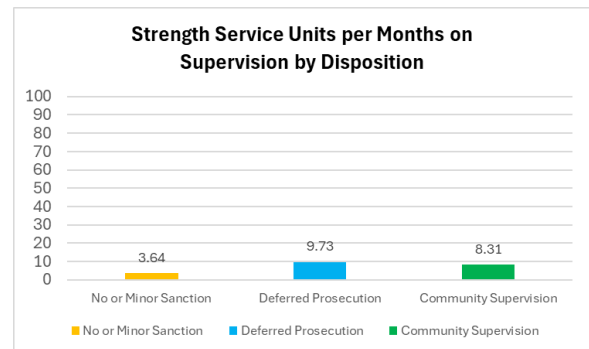


Figure 15: Responsivity-Only Service Units by Disposition

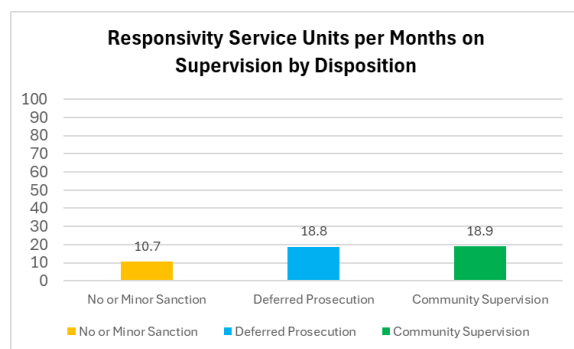
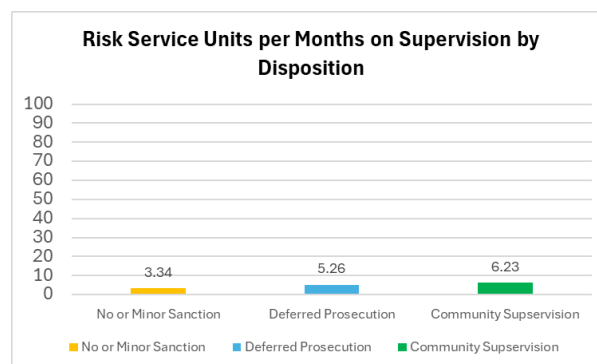


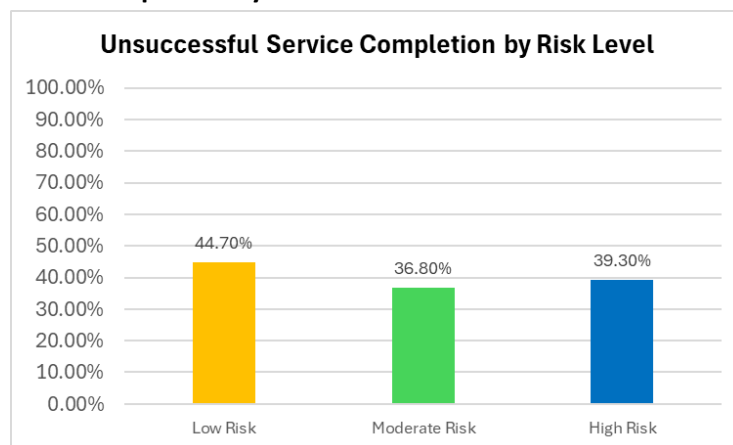
Figure 16: Risk-Based Service Units by Disposition



Successful versus Unsuccessful Service Completion

Among the youth who had data indicating whether their service(s) were not successfully completed ($n = 132$, roughly 60% of the sample), 53 youth (40.15%) had at least one service marked as not successfully completed. There was no significant difference in unsuccessful service completion by risk level, but the findings are tenuous given the small sample size and only 12% of youth were high risk; $\chi^2 (2, N=132) = .670$ $p = .715$.

Figure 15: Unsuccessful Service Completion by Risk level



Do Services Seem to be Following the Need Principle?

This study did not have the resources to examine the match between youths' risk factors (or protective factors) and services received at the individual youth level. However, comparing the most common services received by moderate and high risk youth in this sample (Appendix Tables 6) to the risk and protective factors most strongly associated with violent recidivism permits some important observations. Among moderate and high risk youth:

- Some form of mental health treatment (e.g., counseling, group home for mental health, inpatient treatment) was by far the most common service provided to moderate to high risk youth, with approximately 63% of youth receiving at least one of these services. Roughly 15% received medication

management. With the exception of medication management, several studies have shown mental health services are not effective for reducing recidivism (e.g., McCormick et al., 2017; Skeem et al., 2008).

- Community and Peers domain: This domain was among the most important predictors of violent recidivism and about 19.6% of all services provided to moderate to high risk youth may address this area. These were all strengths-based services, such as mentoring, being in a peer group, Big Brothers/Big Sisters, Prosocial and Social Skills Training.
- School Problems: School problems also was a strong predictor of violent recidivism and only 7.7% of risk reduction services provided to moderate to high risk youth address educational challenges. Almost 12% of the responsivity services fell into the educational area as well (e.g., special education).
- Family: Family was a significant predictor of violent recidivism and a relatively common risk factor among youth who received the full YASI (18.5%). This domain was reasonably well-matched with about 22.5% of services provided being some form of family counseling or other service so address this domain.
- Alcohol and Drug-related services: Substance use was another important predictor of violent recidivism. However, very few services provided to moderate to high risk youth addressed this area (2.8%).
- Aggression and Skills domains would be addressed by roughly the same types of services. Skills was the most common risk factor among the small sample of youth who received the full YASI (34.7%). Only 19.6% of services provided to moderate to high risk youth appeared to be a treatment that might address these issues, such as cognitive-behavioral therapy based interventions (i.e. CBT, FFT, DBT) or a residential or secure treatment program. It is possible the Carey Guides used address this area as well.
- Attitude: Attitude had the second most high scorers of all YASI domains among the small sample of youth receiving the full YASI (22%). Generally, the same services designed to address Aggression and Skills would also address attitudes (e.g., CBT related programs). Adding Attitude-Related Curricula, almost a quarter of youth received an attitudes related service, making this a reasonably well-matched service.
- Employment and Free Time: There were very few high scorers on this domain in the sample of youth who received a YASI, but 14.7% of the services provided to moderate to high risk youth provided a work placement or involved teaching job skills.

I. Qualitative Observations on Challenges to Service Data Tracking and Recommendations

The UMass research team and the State 2 Department of Children and Families developed a comprehensive service REDCap database for counties to track service data. As we worked with the Youth Protective Factor Study counties on quarterly service data quality assurance, the following common challenges emerged across all counties:

- Due to staffing challenges and heavy workloads, it was difficult for some to stay on top of updating service information for each youth. This was particularly true of service end dates and whether the service successfully completed, which was missing for 40% of the sample.
- The frequency with which youth attended each service was often missing. Therefore, the dosages in this study were based on the duration of each service as opposed to the number of times youth actually attended the service.
- Missing information describing the service received when the category was 'Other' (e.g. Strengths-based – Other, D&A Service- Other) were entered.

- Services received within placements or programs that provided an array of individualized services were particularly difficult for youth workers to track.
 - *Recommendation:* Programs and placements should be submitting progress reports or notes to the youth workers routinely. Youth workers could request these programs develop a format for these notes that clearly indicates services received and completed.

*We recommend state 2 strongly consider integrating the service module designed for this study, at least in part, into its larger case management system to track service allocation and usage across youth justice. This would need to be combined with strong staff training in data entry and supervisory oversight. At the minimum, we recommend these data fields be integrated:

- Service type
- Provider
- Actual Start date (rather than referral date) and End date
- Some type of completion status (successful or not)
- Basic dosage of service

J. Key Takeaways/Recommendations for State 2 Related to Services

1. Half of all youth referred did not receive any services. Given national research on the harms caused by formal system processing, this reinforces the importance of exploring the costs vs. benefits to youth, families, community safety, and system stakeholders of arresting and referring these youth to the juvenile justice system in the first place. And whether these youth (and their families) could get connected to needed services/supports more efficiently and effectively outside of the system.
2. There was no statistically significant difference in the number or intensity of services received by youth based on their risk of reoffending, which is not in line with the risk principle. In addition to reviewing risk assessment practices and diversion decision making, state 2 and counties should explore statewide policy and practice around case planning, management, and service referrals as well as training and supports available to local youth services staff needed to ensure moderate and high-risk youth receive a sufficient dosage of services.
3. Few youth are receiving any risk-reduction services despite risk reduction services being central to reduced reoffending. At the same time, over 60% of moderate and high youth received mental health services. State 2 and counties should identify the reasons for this service pattern, including potentially case planning and service referrals policies, use of mental health screenings/assessments, training for staff on mental health vs. criminogenic risk factors, availability of and funding for risk reduction vs. mental health services, and service provider procurement, training, capacity building, and partnership efforts.
4. Implementation of the need principle—matching youth to services based on their specific criminogenic needs—warrants improvement. The proportion of youth receiving Family and/or Attitude-related services appears well-matched based on the rates of youth scoring high in these need areas. However, youth may be getting overserved in the employment area and too few youth received all other types of services, particularly peer-related and substance abuse, which were among the most predictive risk factors for longer term, serious reoffending. Again, this may require the state to support an examination

of not just youth court service staff policies/practices but the service continuum and funding structures that shape what services are available to local communities.

5. Very few youth (1.6%) received services that are typically defined as evidence-based. In addition, approximately 40% of youth did not complete the services to which they were referred. State 2 and state policymakers should review models, statutory guidelines, and grant/incentive programs from other locally-run juvenile justice systems for building statewide capacity around evidence-based practices for youth as well as for assessing and promoting provider service quality and outcomes.

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<https://doi.org/10.1007/s10979-010-9223-7>

State 2 Plan Appendix

Table 5. Frequency of Services Received By Youth with Any Service (n – 256)

Risk-Reduction Services:	Freq youth	% of sample
Aggression Replacement Training (ART) *	1	0.4
Alternative Schools	12	4.7
Attitude or Behavior-Related Curriculum - Other ((i.e. Forward Thinking Journal)	6	2.3
Behavioral Program Residential	7	2.7
Carey Guide - BITS	11	4.3
Carey Guides - Criminogenic Needs	9	3.5
Cognitive Behavioral Therapy*	1	.4
Drug & Alcohol Counseling – individual, group	5	2.0
Dialectical Behavior Therapy *	2	.8
Drug & Alcohol - Education/Prevention Classes	1	.4
Family Counseling	11	4.3
Family Service - Other (I.e. Family Services Aide)	6	2.3
Functional Family Therapy *	8	3.1
Offense-Specific Classes (e.g., shoplifting class)	13	5.1
Parenting Skills Training	4	1.6
Secure Treatment Facility	4	1.6
Sex Offender Treatment - Community	6	2.3
Sex offender treatment - residential	1	.4
Therapeutic Foster Care	1	.4
Victim Mediation Activities	17	6.6

* Denotes evidence-based programs

Strengths-Based Services:	Freq youth	% of sample
Big Brother/Big Sisters	1	<u>0.4</u>
Carey Guides - Strengths	2	<u>.8</u>
Independent Living Program/Housing	2	.38
Job Training Skills (eg. Job Corp, Workforce Readiness Training)	3	1.2
Life Skills Classes/Training	1	.4
Leisure/Recreational - Structured	14	5.5
Mentoring/Positive Role Model	33	12.9
Peer Group	4	1.6
Prosocial Skills Training (specify)	2	.8
Prosocial Sport-Related Activity (specify)	27	10.5

Social Skills Training	4	1.6
School Based Organized Extracurricular Activity/sports	6	4.2
Strengths-based Other (e.g. Youth Engagement Program, SELF program)	10	3.9
Strengths-Based- Organized Program or Curriculum (specify)	4	1.6
Strengths-Based- School Related program (specify)	4	1.6
Volunteer Work (not court mandated)	14	5.5
Work Placement	31	12.1

Responsivity-Only Services:	Freq youth	% of sample
Case Management	11	4.3
Crisis Intervention	3	1.2
Educational Services - Other (e.g. special education program, tutoring)	21	8.2
Family Service- Other- Responsivity	3	1.2
Foster Care	2	.8
General Counseling	11	4.3
Group Home - Mental Health	1	.4
Medication Management	39	15.2
Mental health Inpatient or Partial Hospitalization	11	4.3
Mental health counseling – individual, group, outpatient	120	46.9
Occupational Therapy (OT)	1	0.4
Special Needs Youth Services	5	2.0

*Grey shading indicates the most common services in the tables

Table 6. Frequency of Services Received for Moderate and High Risk Youth with Any Service (n = 143)

Risk-Reduction Services:	Freq youth	% of n = 143
Aggression Replacement Training (ART) *	1	0.7
Alternative Schools	11	7.7
Attitude or Behavior-Related Curriculum - Other ((i.e. Forward Thinking Journal)	5	3.5
Behavioral Program Residential	5	3.5
Carey Guide - BITS	8	5.6
Carey Guides - Criminogenic Needs	8	5.6
Cognitive Behavioral Therapy*	1	.7
Drug & Alcohol Counseling – individual, group	4	2.8
Dialectical Behavior Therapy *	2	1.4

Drug & Alcohol - Education/Prevention Classes	0	0
Family Counseling	7	4.9
Family Service - Other (I.e. Family Services Aide)	4	2.8
Functional Family Therapy *	7	4.9
Offense-Specific Classes (e.g., shoplifting class)	7	4.9
Parenting Skills Training	2	1.4
Secure Treatment Facility	4	2.8
Sex Offender Treatment - Community	3	2.1
Sex offender treatment - residential	0	0
Therapeutic Foster Care	1	.7
Victim Mediation Activities	14	9.8

* Denotes evidence-based programs

Strengths-Based Services:	Freq youth	% of sample
Big Brother/Big Sisters	1	0.7
Carey Guides - Strengths	2	1.4
Independent Living Program/Housing	1	.7
Job Training Skills (eg. Job Corp, Workforce Readiness Training)	3	2.1
Life Skills Classes/Training	0	0
Leisure/Recreational - Structured	6	4.2
Mentoring/Positive Role Model	20	14.0
Peer Group	2	1.4
Prosocial Skills Training (specify)	2	1.4
Prosocial Sport-Related Activity (specify)	10	7.0
Social Skills Training	3	2.1
School Based Organized Extracurricular Activity/sports	6	4.2
Strengths-based Other (e.g. Youth Engagement Program, SELF program)	7	4.9
Strengths-Based- Organized Program or Curriculum (specify)	1	.7
Strengths-Based- School Related program (specify)	0	0
Volunteer Work (not court mandated)	7	4.9
Work Placement	18	12.6

Responsivity-Only Services:	Freq youth	% of sample
Case Management	7	4.9
Crisis Intervention	3	2.1
Educational Services - Other (e.g. special education program, tutoring)	17	11.9
Family Service- Other- Responsivity	3	2.1

Foster Care	1	.7
General Counseling	9	6.3
Group Home - Mental Health	1	.7
Medication Management	22	15.4
Mental health Inpatient or Partial Hospitalization	8	5.6
Mental health counseling – individual, group, outpatient	71	49.7
Occupational Therapy (OT)	0	0
Special Needs Youth Services	5	3.5

*Grey shading indicates the most common services in the tables

APPENDIX F: STATE 3: PROSPECTIVE SAMPLE STATE REPORT

The Youth Protective Factors Study: A Strategy for Promoting Success Based on Risks, Strengths, and Development

A. Background

The Youth Protective Factors Study is an unprecedented multistate, multiyear examination of what risk and protective factors matter most when it comes to reoffending - particularly for violent and other person offenses - for youth ages 10 to 23 who are involved in the juvenile justice (JJ) system. The study also was designed to examine how to maximize case planning and service use, while preserving public safety and enhancing positive youth outcomes by examining what types of services are associated with the greatest reductions in recidivism. The study asked the following key questions:

- Which risk factors best predict violent recidivism, for youth of different ages, after youth are no longer involved with the juvenile justice system?
- Which protective factors are most strongly associated with reductions in violent recidivism, for youth of different ages, after youth are no longer involved with the system?
- What services—risk reduction and/or strengths enhancing—are most effective in reducing violent recidivism, and how do these vary for youth of different ages?

B. State 3 Study Sample Description

The original prospective sample comprised 817 youth eligible for the YASI according to the policies in each of the five participating counties: 4, 13, 14,16, and 31. We excluded 63 of the original 817 youth cases because we did not receive all of their data (e.g., YASI data). These also were the same youth cases for whom state 3 had not received adult recidivism records. Of the final sample of 754 youth:

- 385 (51.1%) completed both a protective factor survey and the YASI prescreen, and
- 367 (48.7%) had the YASI prescreen only
- 1 (0.1%) had the PF survey only
- 1 (0.1%) had neither the YASI or Protective factor survey

Table 1: Sample Characteristics

	Percentage (%)	Count
Sex		
Boys	74.7%	563
Girls	25.3%	191
Race/Ethnicity		
Non-Latinx Black	54.8%	413
Non-Latinx White	27.5%	207
Latinx	11.7%	88
Other/Unknown	6.1%	46
Any placement during the study	50%	387
Offense/Prior Offenses		

Current referral for violent offense	41.8%	315
No prior referrals	71%	535
Prior referral for violent offense	11.9%	90
Most Serious Disposition for Current Referral		
No/Minor Sanction (e.g., restitution, dismissed, nolle prosequi)	23.6%	178
Diversion/Informal (includes defer disposition on condition of good behavior)	42.0%	317
Probation (includes deferred probation)	27.5%	207
Commitment	5.2%	39
Missing or pending	1.7%	13
	Mean	SD
Number of prior referrals	0.90	2.42
Age (years) ^a	15.21 (Range: 10-18 yrs)	1.65
Social Deprivation Index (SDI) ^b	55.95	29.03

^a Age was calculated at youths' start date—the date of the initial YASI or protective factor survey, whichever came first, or the date of the referral for those who did not receive either.

^b Social Deprivation Index (SDI) is composite measure of area level deprivation and a proxy for socio-economic status. Scores can range from 1 to 100 with higher scores indicating greater deprivation

Placements: Half of the youth ($n = 387$) spent time in a placement at some point during the study. We defined *placements* as post-adjudication detention, residential treatment facilities and psychiatric hospitalizations. The majority of placements were short-term detention stays (88.30% of the 387 youth), with 10.57% of the 387 going to residential or substance use treatment, and 1.13% of the 387 committed to a secure facility.

Follow-up Information

We tracked all supervision and service activities for youth from their *start date* (date of the first YASI or protective factor survey, whichever came first) to the end of any involvement with the juvenile justice agency (including any extensions due to new offenses before the original supervision was completed), or the end of the study, whichever came first. Supervision may include informal handling (diversion, deferred disposition on condition of good behavior; court order conditions and limitations for youth who were not adjudicated), deferred disposition (e.g., disposition of defer finding with probation supervision), probation, commitment or a combination of any of the above.

Youth in this sample spent a median 176 days under supervision (range from 0 days to 1,049 days) between the study start date and the end of the study period, or the date when all supervision ended, whichever came first.

We tracked recidivism after supervision for the 587 youth who completed their state 3 involvement during the study, with the median post-supervision time being 483 days (ranging from 0 to 938 days).

Although it was not the main outcome variable for the study, we also examined recidivism occurring during supervision for individuals who spent at least 7 days under supervision after their study start date ($n = 637$).

C. Risk Factors Descriptives

YASI Inter-Rater Reliability

Probation Officers were given three standardized case vignettes over a span of three months (April – June 2022) to test their inter-rater reliability. We calculated intraclass correlation coefficients (ICCs) for each PO for every YASI domain and a YASI total score derived for research purposes. The ICC is the gold-standard index for measuring rater reliability. The ICCs for each of the POs were provided to each site as well as overall feedback. PO's had to receive a score of .60 or above to be considered in the good/excellent range. The domain with the most trouble for POs was the mental health domain. This domain does not factor into youths' risk levels on the YASI and therefore, the researchers did not include it in the ICC calculation. POs were considered to have 'poor performance' if they were outside of the acceptable range for two or more domains and were considered to have 'questionable performance' if they were outside the acceptable range on only one domain (aside from mental health domain). Out of the 99 POs who conducted YASIs for youth in the sample, we did not have reliability data for 56.6% ($n = 56$) of them. Among the 43 POs with known reliability ($n = 43$), 20.9% ($n = 9$) had poor/questionable reliability and 79.07% ($n = 34$) had good reliability.

Risk Level and Need Domains

Over 99% of youth in the sample had an initial YASI-Prescreen ($n = 752$). Table 2 provides the proportion scored at each risk level, with the highest proportion of youth being low risk (43.9%). The researchers only received full assessment data for 44.1% ($n = 332$) of youth who had a YASI-Prescreen (see pg. 22 in the Appendix for an explanation as to how we determined if the full assessment was complete). Ideally, all Moderate and High-Risk youth would have received a full YASI assessment, but it appeared the full YASI was only complete for 56.9% of High-Risk ($n = 87$) and 48.7% of Moderate-Risk ($n = 131$) youth. Additionally, 34.5% of Low-Risk youth ($n = 114$) were administered a full assessment (see Table 2).

Table 2: YASI Risk Level and Full Assessment Data

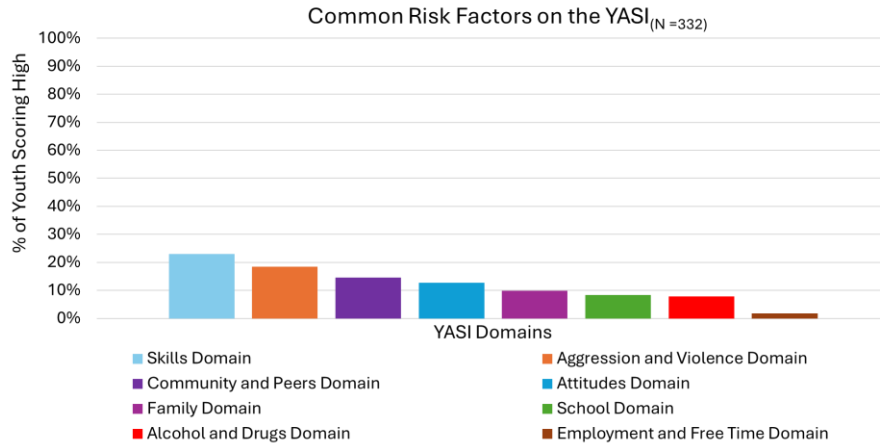
	YASI Risk Level ($n = 752$)	Full Assessment ($n = 332$)
Low	43.9% (330)	34.5% (114)
Moderate	35.8% (269)	48.7% (131)
High	20.3% (153)	56.9% (87)
Total	100% (752)	100% (332)

We were only able to examine YASI risk domains **for the 332 youth** who had a full assessment. The most common risk domains — i.e., the domains where the most youth scored high (not necessarily the domains that most strongly predicted reoffending) — for this sample were (See Figure 1):

- Skills - 22.9% of the 332 youth with a full assessment; 10.1% of those with a YASI prescreen
- Aggression and Violence – 18.4% of the 332 youth with a full assessment; 8.1% of those with a YASI prescreen

- Community and Peers - 14.5% of the 332 youth with a full assessment; 6.4% of those with a YASI Prescreen
- Attitudes – 12.7% of the 332 youth with a full assessment; 5.6% of those with a YASI Prescreen

Figure 1: % Scoring High on YASI Risk Factor Domains Among the n = 332 with a Full Assessment



Most Serious Dispositions by Risk Level

As shown in Table 3, there was some consistency with the risk principle such that, among youth with a YASI-Prescreen and adjudication, intake decision, or and disposition data ($N = 739$), high-risk youth were most likely to receive probation or commitment, and moderate-risk youth received probation. **However, over a third of moderate and high risk youth received only a sanction or no sanction.** The most common disposition for each risk category was as follows:

- Low-Risk youth = Informal disposition (72.1%)
- Moderate-Risk youth = Probation (40.7%)
- High-Risk youth = Probation (40.4%)

**There is an important caveat to this finding. Many youth in the sample who had a petition filed but were not adjudicated or had petitions dismissed, did not have a disposition recorded. However, some these youth did receive services. It is possible these youth were given and successfully completed some conditions prior to their adjudication hearing, or their dispositions were simply not recorded by county. In the absence of disposition or intake decision information, we coded these youth as 'no sanction'. In sum, the disposition data is not entirely reliable.

Table 3: Youth's Primary Disposition by YASI Risk Level ($N = 739$)

YASI Risk Level	N	No or Minor Sanction %(N)	Informal %(N)	Probation %(N)	Commitment %(N)
Low	330	14.2% (47)	72.1% (238)	12.4% (41)	1.2% (4)
Moderate	263	30.8% (81)	24.0% (63)	40.7% (107)	4.6% (12)
High	146	34.2% (50)	9.6% (14)	40.4% (59)	15.8% (23)
Total Dispo		24.1% (178)	42.6% (315)	28.0% (207)	5.3% (39)

There were significant differences in disposition by county such that, relative to the other NIJ counties:

- County 4 had significantly higher rates of Probation,
- County 13 and County 31 had significantly higher rates of No or Minor Sanction, and
- County 14 and County 16 had significantly higher rates of Informal dispositions.

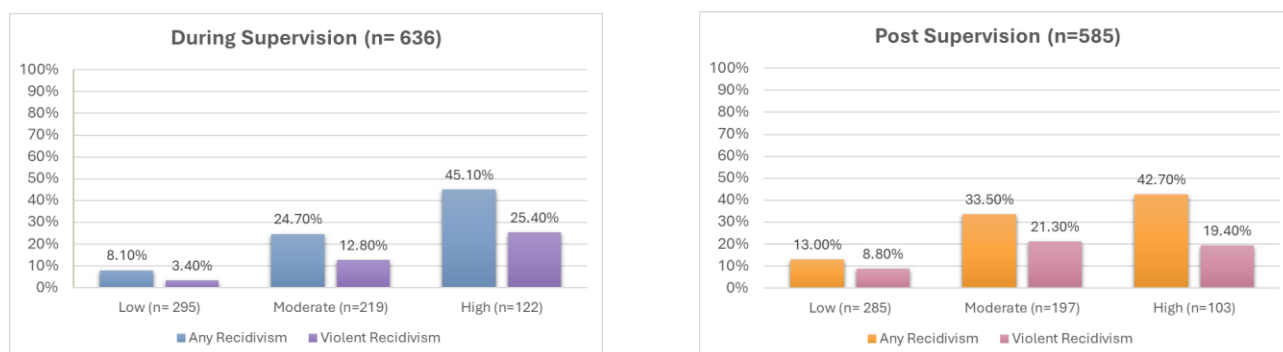
D. Recidivism

We defined recidivism as new petitions. The recidivism rates for this sample were relatively low:

- During supervision ($n = 637$), the rate of any recidivism was 20.9% ($n = 133$) and 10.8% ($n = 69$) for violent recidivism over the median 176 days spent on supervision.
- After supervision ($n = 587$), the rate of any recidivism was 25.0% ($n = 147$) and 14.8% ($n = 87$) for violent recidivism over the median 483 days youth were tracked post-supervision.

Risk was significantly associated with recidivism during supervision, such that high risk youth were most likely to reoffend (any recidivism- $\chi^2(2) = 74.07$, $p < .001$, violent recidivism- $\chi^2(2) = 44.56$, $p < .001$). After supervision, however, risk level was significantly positively associated with any recidivism ($\chi^2(2) = 46.63$, $p < .001$), but for violent recidivism, the only difference was in the lower recidivism rates of low-risk youth; $\chi^2(2) = 16.53$, $p < .001$ (see Figure 2). Note the sample sizes in the figures are lower than those for the overall recidivism rates due to two youth missing the YASI.

Figure 2: During vs. Post-Supervision Recidivism Rates by Risk Level



Which Risk Factors Most Strongly Predicted Recidivism?

We used each youths' initial YASI to predict 'post-supervision' recidivism, while controlling for the length of time youth had an opportunity to reoffend (see recidivism methods in Appendix). Our focus was on recidivism after supervision to avoid the influence of any current supervision strategies. The goal was to capture the likelihood that youth reoffend, *after* a period of supervision and services in these agencies.

After controlling for youths' demographic characteristics (i.e., age, gender, race/ethnicity), the domains that predicted post-supervision violent recidivism in rank order starting with the strongest, were:

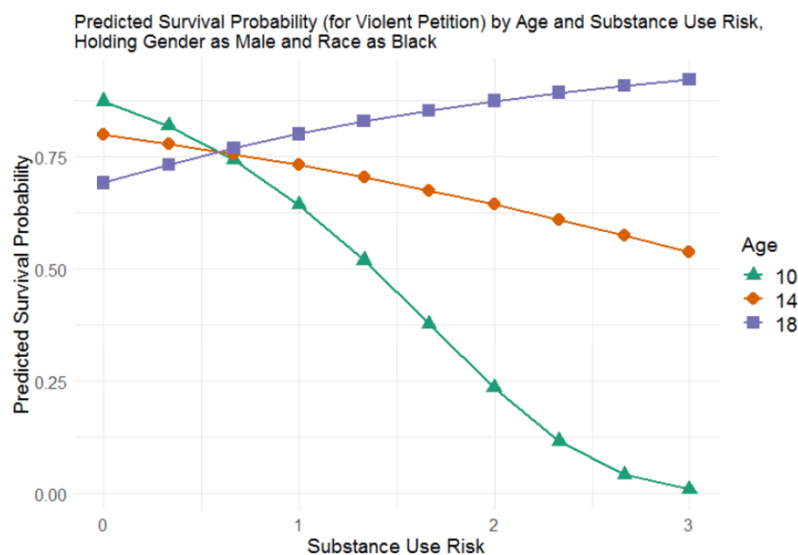
- **Family** (HR=1.73 CI[1.46, 2.06]).
- **Aggression and Violence** (HR=1.43 CI[1.16, 1.76])
- **Community and Peers** (HR=1.42 CI[1.21, 1.66])
- **School** (HR=1.28 CI[1.05, 1.56])

Contrary to our findings with the state 3 retrospective sample, the YASI domains of Alcohol/Drugs, Attitude, Skills, and Employment and Free Time were not predictive of violent recidivism after completion of youths' state 3 involvement.

Does the Strength of Risk Factors Depend on Youth's Age?

Consistent with our findings with the retrospective sample provided in early 2024, the importance of the **Alcohol/Drug Domain to violent recidivism depended on youths' age (see Figure 3)**. Substance abuse predicted violent recidivism more strongly for younger than older youth after their involvement with the juvenile justice system. This robustly indicates that substance abuse is a bigger red flag for recidivism among young youth than for older youth, where it is more common.

Figure 3: Survival Probability by Age and Alcohol/Drug Risk



NOTE: As the level of substance use risk increased, predicted survival probability (no violent petition after supervision) decreased for younger individuals (e.g., ages 10 to 14 years), but for older youth, substance use had little influence on violent recidivism.

E. Protective Factors

Qualitative Observations on Strengths and Challenges to Protective Factor Survey Administration

Out of the 754 youth in our sample, 386 (51.2%) who were eligible for a PF survey did not receive one. For a few cases, this was due to youth cognitive/language challenges (n = 3, 0.4%). For the majority of

cases, however, youth declined to take the survey (n = 105, 13.9%) or the survey was simply missed due to the cases transferring to another court, petitions being dismissed or nolle prosequi, or the probation officer simply missed administering the survey (n = 260; 34.5%).

There were systematic biases between youth who did and did not receive the protective factor survey by race and risk level, such that:

- Race: A significantly smaller proportion of non-Latinx White youth completed the survey compared to Latinx/Black youth $\chi^2 (2, N = 708) = 13.43, p = .001$.
- Risk level: A significantly smaller proportion of low risk-youth completed the survey compared to moderate/high-risk youth; $\chi^2 (2, N = 752) = 11.67, p = .003$.

There were no significant differences between by age or gender for those who did or did not receive the survey.

Protective Factor Survey Descriptives

The final sample of youth with a valid protective factory survey was 374 (49.6%). Because the protective factor measures do not have cutoff scores that distinguish high from low scorers, particularly in juvenile justice samples, we used receiver operating characteristic curves to identify the score on each scale that best discriminated the group of youth with 15% or less recidivism from those with greater likelihoods of reoffending.

We used those cut-off scores to describe the most common protective factor domains among youth who received a survey (see Figure 3). The domains with 50% or more youth scoring above the cut-off scores in state 3, similar to our other study states, were:

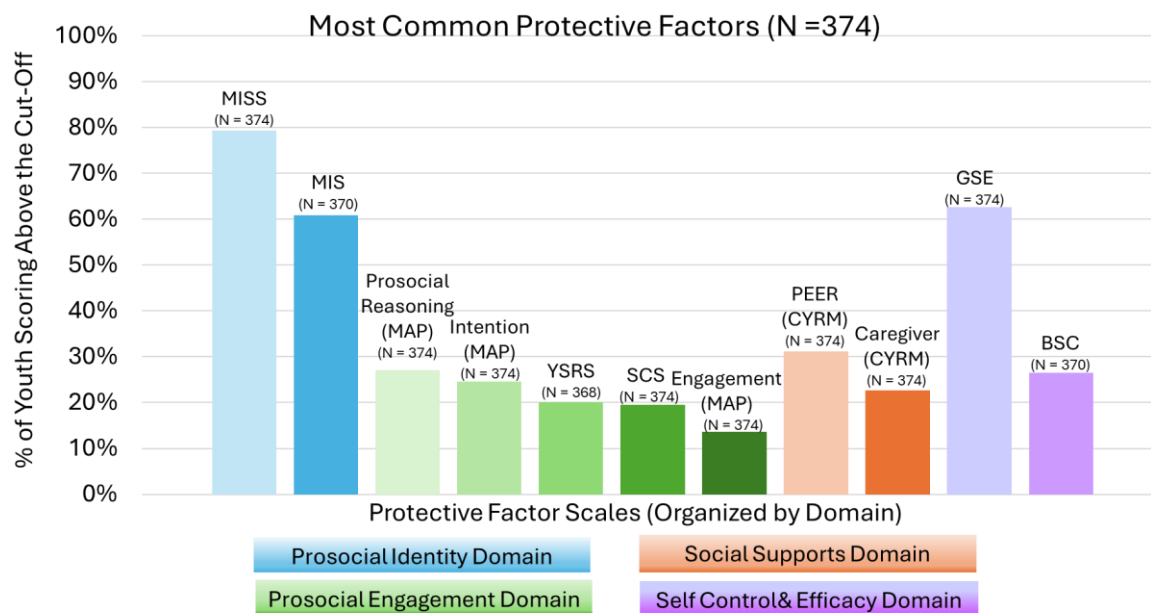
- Prosocial Identity (MISS: 79.4%; MIS: 60.2%)
- Self-Efficacy (GSE: 62.6%)

The domain with the lowest proportion of youth scoring above cut-off scores—i.e., the least common protective factor domain in state 3—was:

- Prosocial Engagement - Adolescent Purpose Engagement scale = 13.6%.

It's important to note the %'s in Figure 3 may not be generalizable to state 3 youth referrals generally since only half the sample is represented, and both non-Latinx White and low risk youth were disproportionately missing.

Figure 3: Most Common Protective Factors within the Youth Sample (n = 374)



What Protective Factors Most Strongly Predicted Recidivism?

Few protective factor measures from the survey predicted reductions in violent recidivism after supervision. The only domain that protected against violent recidivism for the sample as a whole was:

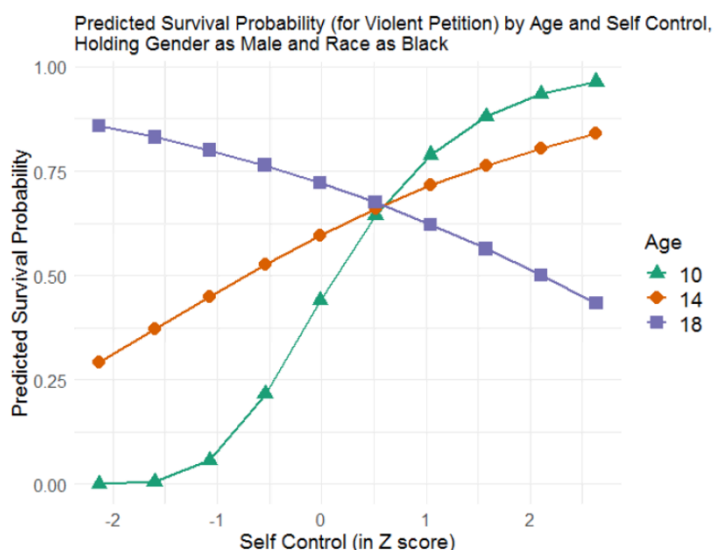
- **Self-Control and Self-Efficacy**
 - Self-control (HR=0.76 CI[0.62, 0.92])
 - Self-efficacy (HR=0.73 CI[.59, .90])

One additional domain predicted less serious recidivism after supervision—**Social Supports**, mainly having social support from peers (HR=0.88 CI[0.78, 0.99]). The remaining protective factor domains were unrelated to recidivism for the sample as a whole.

Does the Strength of Protective Factors Depend on Youth's Age?

The influence of three protective factors domains (four scales) on violent recidivism after supervision differed based on youths' age. In every case, the protective factors mattered more for younger youth with respect to reducing recidivism. First, **Self-Control and Self-Efficacy** (HR for Self-Control interaction = 1.21 CI[1.09, 1.35]; Self-Efficacy HR = 1.13, CI [1.00, 1.27]) protected younger youth such that those low in these protective factors were much more likely to recidivate than those at higher levels, but had little effect with older youth (see Figure 4). We found a similar patterns for **Social Supports**, mainly having a Supportive Caregiver (HR for interaction = 1.14 CI[1.01, 1.29]). The influence of **Prosocial Engagement** also differed by age. Mainly, School Connectedness (HR for interaction = 1.29 CI[1.17, 1.42]) was a much stronger protective factor for younger youth than older youth.

Figure 4: Survival Probability by Age and Self-Control



NOTE: Self-Control had a greater influence on reductions in violent recidivism after supervision for younger youth than for older youth, but was important for both.

F. What Matters for Predicting Violent Recidivism: Risk Factors, Protective Factors, or Both?

The answer to what matters more for youth recidivism, risk or protective factors, is BOTH. After controlling for gender, race, and age, the YASI total risk level strongly predicted violent recidivism after supervision. However, in incremental predictive validity analyses, it was clear that Self-Control and Self-Efficacy added to the YASI to generate a stronger prediction. Regardless of youths' risk level, high **Self-Control and Self-Efficacy** were associated with a reduction in violent recidivism after state 3 involvement at a strong effect (incremental validity HR = 0.68 CI[.51, .89])

G. Key Takeaways/Recommendations for State 3 Related to Risk and Protective Factors

5. For the study counties, youth referred to counties were 71% first-time offenders and 44% were assessed as low risk. For all youth referred, 24% appear to have received no or minor sanction and another 42% received an informal disposition. For low-risk youth, particularly, 86% received no or minor sanction or an informal disposition. Additionally, as described below, 43.5% of all referred youth did not receive or engage in services during the study period. Taken together, these findings—along with research on the harms caused by formal system processing—support the need for state 3 to explore alternative pathways for youth to obtain needed services/supports outside of an arrest and state 3 involvement.
6. Half of all youth referred to the participating counties spent time in placement, most commonly detention. Given the lower risk nature of the referred population, this use of placement should be reevaluated. Research shows that even a brief time in detention can increase recidivism and negatively impact young people's mental health and educational attainment. And this finding

affirms the importance of keeping many of these youth from law enforcement/system contact in the first place, and establishing alternative pathways for lower risk youth to receive services, so that detention is never an option for them.

7. Youth were generally matched to dispositions aligned with their risk reoffending. However, approximately a third of moderate and high-risk youth received no or minor sanction compared to only 14% of low-risk youth. Dispositional decisions also differed significantly across the counties. Related, the full YASI was only completed for 49% of moderate risk youth and 57% of high-risk youth. While county intake staff may not control some of these decisions (e.g. prosecutor dismissal, judge combining adjudication/disposition to occur at the same time, etc.), it's important to explore YASI assessment practices statewide to ensure moderate and high-risk youth receive a full assessment to inform diversion, service, and disposition decisions. These findings align with findings and recommendations from state 3's system reform grant that highlighted the need for more consistent, research-based intake policies statewide around the use of risk assessments, no sanction/diversion criteria, and dispositional practices. The need for improved and more consistent policy in this regard is especially important given the relatively high recidivism rates post-supervision for moderate and high-risk youth, suggesting these youth may not be receiving the services/oversight they need to reduce their risk of reoffending.
8. Youth's most common risk factors—Skills, Aggression, Community and peers, and Attitudes—had some overlap with the domains that most strongly predicted reoffending but not consistently so. The domains that most predicted violent reoffending post supervision were Family, Aggression, Community and peers, and School. This difference highlights the need for individualized approaches to case planning and services as well as the importance of aligning and funding available services and supports that can best address the risk factors that matter most for more serious reoffending for state 3 youth.
9. Similarly, youth's most common protective factors included Prosocial identity and Self-efficacy. It was Self-control and Self-efficacy that mattered most for reducing reoffending. State 3 should consider what supervision activities, types of services and supports it could employ to help youth improve their self-control and self-efficacy.
10. Age differences impacted both the risk and protective factors that most influenced recidivism. Substance abuse predicted post-supervision violent recidivism only for younger youth and were negligible for older youth. As such, state 3 should consider significant substance use as a red flag for younger youth that may require appropriate interventions. For protective factors, self-control and self-efficacy, supportive caregivers, and school connectedness protected younger youth such that those low in these protective factors were much more likely to recidivate than those at higher levels, but had a negligible effect with older youth. State 3 should consider how to strengthen the interventions available to younger youth to help them improve their self-control, support system, and school engagement.
11. Given that some specific protective factors were more important for predicting youth's risk of violent reoffending post-supervision than risk level, state 3 should consider the utility of adopting a streamlined, modified version of the protective factor survey concentrated on the

protective factors most associated with reduced reoffending for state 3 youth (self-control and self-efficacy).

H. Service Descriptives

Researchers tracked all services the youths' attended from each youth's study start date to the end of their JJ involvement, or end of the study period (1/31/2024), whichever came first (Md = 176 days follow-up). We calculated each youth's number and dosage of services.

Of the 754 youth cases, 328 (43.5%) did not receive or engage in self-referred services during the study period. Relative to youth who received services, those who did not receive any tended to:

- Have a disposition of No or Minor Sanction; $\chi^2 (3) = 67.20, p < .001$
- Be in county 13 or 31; $\chi^2 (4) = 21.714, p < .001$

There were no statistically significant differences by race, risk level, or gender in service utilization.

NOTE: All descriptives and analyses in this section were based on the 424 youth with services.

Services Most Commonly Received

The percent of youth out of the 424 who received any services within our buckets were:

- 68.9% Risk-reduction service
- 40.1% Strengths-based service
- 41% Responsivity-only services

Table 5 in the Appendix provides the frequency at which the sample of 424 youth received specific services, categorized within our three service buckets. The services most commonly received represented a blend of risk reduction, strengths-based, and responsivity-only services:

- Mental health counseling- (individual, group, outpatient - 24.5%)- Responsivity-only
- EPICS curriculum (13.0%) – Risk-reduction
- Anger Management (12.0%) – Risk-reduction
- Casey Life Skills (12.0%) – Strengths-based
- Prosocial Skills Training (11.6%) – Strengths-based
- Drug and Alcohol Counseling (individual, group, outpatient - 10.6%) – Risk-reduction

Just under 1 in 5 (18.9%) of youth received any type of evidence-based programming (see Appendix Table 5). **Table 6** provides the percents of services received for the moderate and high-risk youth only.

Service Dosage Units

Overall, youth (n = 424) received the following dosage units of services per month of supervision:

- Any services—median = 27.12 units (0 to 282.12)
- Risk-reduction services—median = 6.41 units (0 to 111.87)
- Strengths-based services—median = 0 units (0 to 67.59)
- Responsivity-only services—median = 8.62 units (0 to 244.32)

Differences in Total Service Dosage Units by Youth Characteristics and Disposition

Among youth who received any services, after controlling for the amount of time spent on supervision, there was some variability in the dosage units of services received by youth characteristics:

- Consistent with the risk principle, Low risk youth received less service units per month on supervision compared to moderate or high-risk youth; ($F(2, 416)=7.67$ $p < .001$)
- Youth with an Informal disposition received less service units per month on supervision than No or Minor Sanction, Probation, and Commitment; ($F(4, 412)= 7.175$ $p < .001$)

There were no statistically significant differences in the dosage of services received based on youths' age, gender, or race/ethnicity after controlling for length of supervision. Surprisingly, 15.7% of youth with no or only a minor sanction received services, but some may have been self-referred.

There also were some county-based differences in receipt of service dosage units (after controlling for gender, race, age, youth's risk levels, and disposition) per month of supervision, such that:

- County 14 had the lowest overall service dosage units and county 31 had the highest; ($F(4, 405)=3.55$ $p = .007$).
- County 13 had the highest risk-reduction service dosage units; ($F(4, 405)=6.30$ $p < .001$).
- County 31 had the highest responsivity-only service dosage units; ($F(4, 405)=3.307$ $p = .011$).

There were no statistically significant differences in the service dosage units of strengths-based services by county; ($F(4, 405)=2.266$ $p = .061$).

Are Service Dosage Units Following the Risk Principle?

The short answer is 'in some respects'. After controlling for gender, age, disposition, and length of supervision, Low risk youth received significantly lower dosages than moderate and high risk youth; however, there was not a significant difference between moderate and high risk youth (see Figures 7-10 for marginal means). The differences per month of supervision were....

- Any service: Low risk youth received the lowest dosages; ($F(2, 409)= 9.425$, $p < .001$,
- Risk-reduction: Low risk youth received the lowest dosages; ($F(2, 409)= 4.023$, $p = .019$, and
- Responsivity-only: Low risk youth received the lowest dosages; ($F(2, 409)= 9.767$, $p < .001$).

Dosages of strengths-based services did not differ by risk level; ($F(2, 409)= .291$, $p = .748$).

Figure 7. Ave Any Service Units by Risk

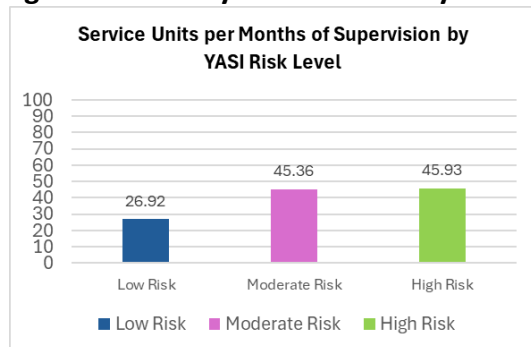


Figure 8. Ave Risk Service Units by Risk

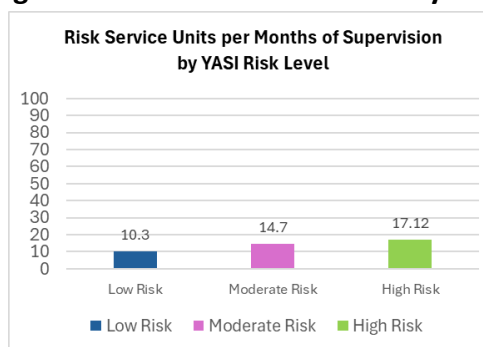


Figure 9. Ave Responsivity Service Units by Risk

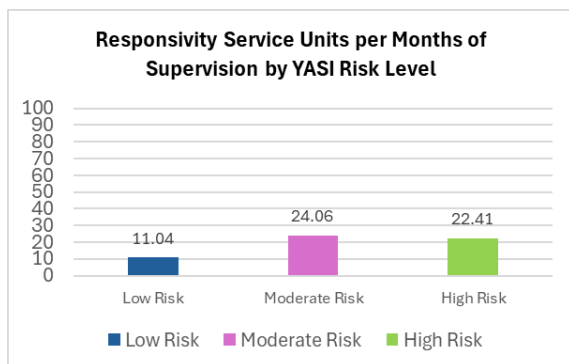
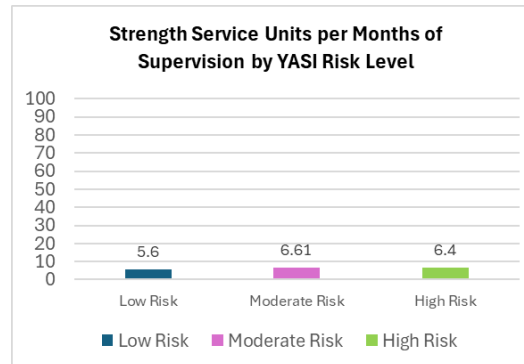


Figure 10. Ave Strengths Service Units by Risk



Does Service Dosage Differ by Disposition?

Whether youth received any of the above services was also tied to their most serious disposition for each bucket of services. After controlling for gender, age, time on supervision, and risk level, the following patterns of service dosage by disposition emerged (see Figures 11-14):

- Informal dispositions received the lowest dosages of any services ($F(2, 408) = 4.151, p = .006$) and responsivity-only services ($F(2, 408) = 3.595, p = .014$).
- Disposition was not related to service dosage for risk-reduction ($F(2, 408) = 1.511, p = .211$), or strengths-based services ($F(2, 408) = .514, p = .654$).

***Caveat: youth with petitions dismissed or nolle prosequi and no disposition data received comparable service dosages to all other dispositions with the exception of informal youths. This is another sign that that disposition data were missing for a number of youth in the sample.

Figure 11. Any Service Units by Disposition

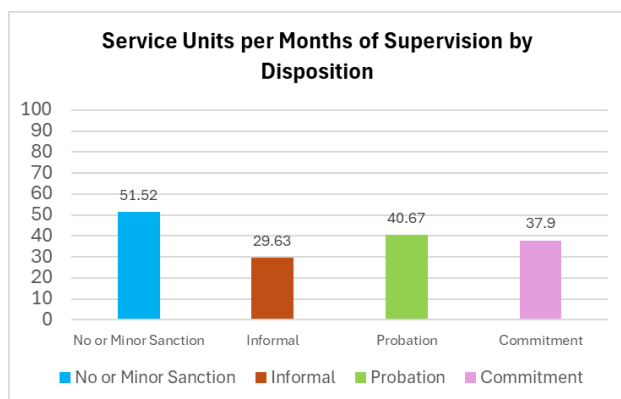


Figure 12. Responsivity Service Units by Disposition

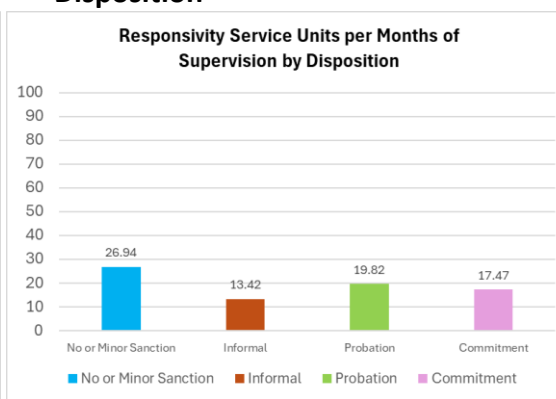


Figure 13. Risk Service Units by Disposition

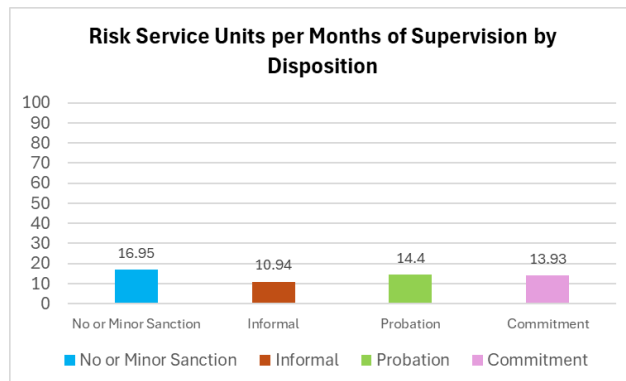
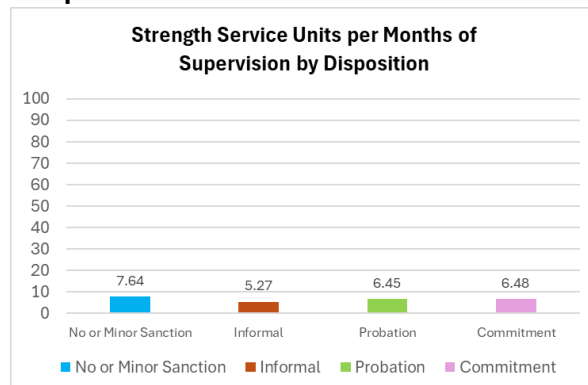


Figure 14. Strength Service Units by Disposition



Successful versus Unsuccessful Service Completion

We were unable to conduct analyses to examine the rate at which youth did not successfully complete services because data were missing for many services. Moreover, the rate of unsuccessful completion was unusually low, making the reliability of this data field uncertain.

I. Have Services Been Effective for Reducing Post-Supervision Recidivism?

The short answer is ‘no’. Our best examination of receipt of risk-reduction services indicated that they had little influence on reducing recidivism, and surprisingly, strengths-based services were associated with a significant increase in recidivism compared to those who did not receive any of these services.

Method: The method for examining this question is complex and requires taking many factors into account. In the absence of randomly assigning youth to receive certain services, examination of the impact of services on recidivism requires controlling for differences among youth with the greatest probability of receiving those services. We used a conservative, machine-learning approach called SuperLearner to create weights for each youth based on their probability of receiving risk or strengths-based services. This approximates random assignment by controlling for all the differences between youth who did and did not receive any services. We removed youth who received no sanction because few received any services and it was making our weighting unstable. We used all of the following correlates to the probability of youth receiving particular types of services in the creation of these weights: youths’ risk level, disposition (as a proxy for level of system involvement), age, gender, race/ethnicity, sociodemographic status, offense severity, number of prior offenses, and whether the index offense was violent.

Result: **Table 7** provides the hazard ratios for these effects. Significant hazard ratios above 1 indicate a higher likelihood of recidivism, with higher numbers meaning an even higher likelihood. The table shows youth who received any strengths-based service had a significantly greater likelihood of any and violent post-supervision recidivism. Risk-reduction services did not significantly influence any form of recidivism.

Because these findings were unexpected, we attempted several other analyses to attempt to explain the results:

- 4) An analysis using a traditional approach to propensity weighting produced the same pattern of results with larger effects.
- 5) Removing youth who spent any time in a placement (a group where peer contamination would presumably be highest) did not impact the findings.
- 6) We attempted to examine whether there was an effect of service dosage. On the positive side, youth receiving fewer days of risk-reduction services (below the median) were significantly less likely to recidivate (any recidivism-HR = 0.46*** CI[0.33, 0.63]; violent—HR = 0.43*** CI[0.32, 0.57]), whereas higher dosages of risk reduction services had no effect. For strengths-based services, small dosages had no effect on any recidivism, but were still associated with increased violent recidivism (HR = 1.97*** CI[1.24, 3.13]). The effect worsened as the dosage of strengths-based services increased. These analyses are less reliable than the analyses presented below, which compared youth who received no services to those who received any.

Table 7: Influence of Receiving Services on Post-Supervision Recidivism

Service Type	Any post-supervision recidivism	Violent post-supervision recidivism
Any risk service received	HR = 0.70	HR = 0.78
Any strengths service received	HR = 1.53*	HR = 2.22***

One explanation for the seeming iatrogenic effects of services is that < 20% of youth received services that would clearly be identified as evidence-based, which did not include any of the strengths-based services. Another potential explanation is that services are not being well-matched to the risk factors that matter most.

J. Do Services Seem to be Following the Need Principle?

This study did not have the resources to examine the match between youths' risk factors (or protective factors) and services received at the individual youth level. However, comparing the most common services received by moderate and high-risk youth (Appendix Table 6) to the most common risk factors for this group permits some important observations. Regarding the most common services received by moderate and high risk youth:

- Mental health treatment of any type was by far the most common service received by moderate and high-risk youth (45.1% of sample), including counseling, medication management, and inpatient treatment. With the exception of medication management, several studies have shown these services are not effective for reducing recidivism (e.g., McCormick et al., 2017; Skeem et al., 2008).

- Aggression and Skills: These were the most common risk domains among youth who received a full YASI and Aggression/Violence was one of the most predictive risk domains, and thus, is important to address. 23% of youth received a service that may address these areas, such as a cognitive-behavioral therapy based intervention (i.e. MRT, DBT), anger management, or a secure treatment program. It is possible the EPICs curriculum also addresses these issues, which was received by 17.6% of high to moderate-risk youth.
- Attitude: In general, many of the services designed to address Aggression and Skills would also address attitudes (e.g., CBT related programs). Adding Attitude-Related Curricula, 28.4% of all services received by moderate to high risk youth addressed this domain, making this a reasonably well-matched service.
- Community and Peers: This was one of the more common risk domains for youth who received a full YASI, though still had a low incidence (> 14%), and was a strong predictor of violent recidivism. This area may have been overserved with 53.5% of services given to moderate and high-risk youth addressing this area, such as mentoring, a gang intervention or other peer group, life skills training, and Prosocial or Social Skills Training.
- Family: Family was not a common risk area for these youth, but was a strong predictor of violent recidivism. This area may also have been overserved with 35.9% of services given to moderate and high-risk youth addressing family issues, including family counseling, FFT, MST, BSFT, and parent skills training.
- School Problems: Only 2.5% of moderate and high-risk youth had some form of educational service (e.g., alternative schools, special education) recorded. This was a strong predictor of recidivism and may need to be better matched. However, this domain also considers behavioral problems in school, implying some of the same services mentioned in the Aggression and Skills areas may address this area.
- Alcohol and Drug-related services: 19.7% of services provided to moderate and high-risk youth were a drug and/or alcohol related service. Considering the YASI results and the fact this area matters less for older youth, this area may also have been overserved.
- Employment and Free Time: Job training or work placements were the least common services provided to moderate to high-risk youth (3.7%), which is on par with how many youth scored high in this area.

I. **Qualitative Observations on Challenges to Service Data Tracking and Recommendations**

The research team worked with the State 3 Department of Juvenile Justice to modify the states existing service data tracking system for more robust service data collection. Modification of this existing system led to some challenges in service data recording for staff because much of the essential information had to be entered into comment fields, the drop-downs (NIJ Strengths-based) did not capture all service types they were asked to enter, and actual start dates of services were often missed. As we worked with the Youth Protective Factor Study counties on quarterly service data quality assurance, the following common challenges emerged:

- Due to staffing challenges and heavy workloads, it was difficult for some POs to stay on top of updating service information for each youth. This was particularly true of actual start dates (not expected dates) and dosage. The frequency with which youth attended each service was often missing. Therefore, the dosages in this study were based on the duration of each service as opposed to the number of times youth actually attended the service.
 - *Recommendation:* Implement a routine schedule for workers to update service data.
- Services received within placements or programs that provided an array of individualized services were particularly difficult for workers to track (ex. Crime Project, Post D).
 - *Recommendation:* Programs and placements should be submitting progress reports or notes to the workers routinely. POs could request these programs develop a format for these notes that clearly indicates services received and completed.
- Often times multiple services were entered in the same event. Since much of the information went into the service event comment, this makes it difficult to separate out services and properly analyze the effectiveness of these services. This also makes it easy for dates and dosage to not be recorded for each service in multiple in the same comment.
 - *Recommendation:* Revise the service module so it captures this information for each service in a more accessible manner.
- Certain services such as DBT – Based Skills Group and CPP Individual Therapy were entered as single sessions instead of one entry that reflects the true start and end dates.
 - *Recommendation:* Training POs to enter one service and update at the end of the service instead of each single session. This also may help reduce the amount of times they have to go into the system to make updates.

J. Key Takeaways/Recommendations for State 3 Related to Services

5. Low-risk youth received a significantly lower dosage of services than moderate and high-risk youth; however, there was not a significant difference in service dosage between moderate and high-risk youth overall or for any specific type of services (risk reduction, responsivity, and strength-based services). Research highlights the importance of higher-risk youth receiving a higher dosage of services for recidivism reduction, and higher-risk youth in the study sample had substantial recidivism rates post-supervision. As such, state 3 should review its case management and service protocols to ensure higher risk youth are prioritized for services, that state 3 staff are actively partnering with youth and families to engage with these services, and that providers are willing and trained to work effectively with these youth.
6. Youth who received risk reduction services experienced little recidivism reduction benefit while youth who received strength-based services were actually more likely to reoffend. Services are most effective when matched to individualized needs, target the risk/protective factors that matter most for predicting violent reoffending, and are research-based. Study findings highlight potential opportunities for state 3 to strengthen its service continuum and use of services and to better maximize available resources to improve public safety, including:
 - e. The most common services that youth received—mental health counseling—don’t target the risk factors that best predicted long-term, serious reoffending for state 3 youth (family, aggression and violence, community and peers, and school). In addition, while it’s important to address mental health as a responsivity factor when indicated, mental health counseling on its own generally has no impact on recidivism. State 3 should review counties use of

- these services, particularly since a mental health screening is not conducted at intake across most counties to help identify the need for further evaluation and potential mental health services.
- f. At the same time, the aggregate data available raises questions on whether youth are consistently matched to services based on their individualized risk factors. It appears that some types of risk reduction services are used more frequently than expected given the prevalence of related risk factors in the population served by state 3 while other services are used less than expected, particularly alcohol/drug services when this risk factor seems to influence only younger youth's reoffending. State 3 should explore opportunities to strengthen its case planning and service matching policies and to develop service matrices for each county to clearly identify what services are available and the risk/responsivity/protective factors these services address. The development of such matrices could also help state 3 identify whether some counties simply lack community-based services that address specific dynamic risk factors and thus more efforts are needed to build targeted provider/service capacity in these areas.
 - g. Another reason that services may have had little impact is that less than 1 in 5 youth received services that can be reasonably classified as evidence based. While moderate and higher risk youth were more likely than other youth to receive an EBP such as FFT, ART, or MST, these youth were still far more likely to receive mental health counseling or drug and alcohol services than services like cognitive behavioral therapy that has proven to be effective at recidivism reduction. State 3 should review the evidence-base of the services for which it contracts; explore if and how Medicaid could be used to fund and expand evidence-based service capacity across the state; identify what if any steps are needed to train providers in EBPs and related techniques; and consider adopting a more formal service quality assessment instrument such as the SPEP to measure and promote service matching, dosage, and quality.
 - h. Finally, it's not clear why youth who received strength-based services were more likely to recidivate. While mentoring was the most common strength-based service, state 3 should review whether most of the other strength-based services that youth received are group-oriented services targeted at delinquent youth, and thus, might have a negative peer contagion effect. Either way, as mentioned earlier, state 3 should more intentionally invest in strength-based services that target the protective factors that matter most for reducing reoffending—self-control and self-efficacy.

References

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- Skeem, J. L., Manchak, S., & Peterson, J. K. (2011). Correctional policy for offenders with mental illness: Creating a new paradigm for recidivism reduction. *Law and Human Behavior*, 35(2), 110–126.
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State 3 Plan Appendix

Procedures for Identifying Youth With A Full YASI Risk Assessment

Researchers did not receive the variable indicating whether youth completed the YASI Full Assessment. Unfortunately, the web-based software calculates risk levels (most often 'none') for all youth who received the YASI prescreen, whether they completed the full assessment or not. Thus, we consulted with a colleague at Orbis Partners to determine which youth in the sample did not have a complete YASI assessment. We followed these steps to identify youth who DID not have a full YASI assessment:

- Identified youth who had risk levels of 'none' in both the dynamic risk and protective domains on the Skills and Attitudes scales, which is not possible. This resulted in eliminating 265 youth (35.2%)
- Identified youth who scored "none" in both the dynamic risk and protective domains for Aggression AND also had none or missing data for all items on the subsequent risk scale (Employment and Free Time), which would suggest incomplete assessments. This resulted in elimination of another 155 youth (20.6%).

Together, this resulted identification of **55.9% (n = 420)** of youth who did not have a complete YASI.

Table 5. Frequency of Services Received in State 3 Counties

Risk-Reduction Services:

Service Type Final Description	Youth Count	% of sample (n=424)
Aggression Replacement Training (ART)*	14	3.3
Alternative Schools	1	0.2
Anger Management	51	12.0
Attitude or Behavior-Related Curriculum – Other (I.e. Positive life changes)	27	6.4
Brief Strategic Family Therapy	3	0.7
CBT - MH specific	1	0.2
CBT Curriculum*	14	3.3
D&A Counseling (I.e. individual, group, outpatient)	45	10.6
D&A service - Other (specify) (I.e. check-in session)	1	0.2
Dialectical Behavior Therapy*	2	0.5
Drug & Alcohol - Education/Prevention Classes	10	2.4
EPICS curriculum	55	13.0
Family Counseling	20	4.7
Family Preservation	9	2.1
Family Service – Other (I.e. Case Management)	2	0.5
Firesetting/Firestarter Treatment	5	1.2
Functional Family Therapy*	21	5.0
Gang Intervention Program	19	4.5

Moral Recognition Therapy (MRT)*	4	0.9
Multisystemic Therapy*	37	8.7
Offense-Specific Classes	21	9.7
Parenting Skills Class	5	1.2
Secure Behavioral Programming	5	1.2
Sex Offender Counseling	7	1.7
Sex Offender Counseling – Group/classes	1	0.2
Sex Offender Treatment - Community	7	1.7
Sex offender treatment - residential	5	1.2
Therapeutic Foster Care	1	0.2
Victim Awareness/Empathy Training	11	2.6
Victim Mediation Activities	1	0.2

Strengths-Based Services:

Service Type Final Description	Youth Count	% of sample
Casey Life Skills	51	12.0
Employment – Other (I.e. CAYIP)	3	0.7
Independent Living Program/Housing	1	0.2
Job Training Skills (eg. Job Corp, Workforce Readiness Training)	5	1.2
Leisure/Recreational - Structured	4	0.9
Life Skills Classes/Training	24	5.7
Mentoring/Positive Role Model	43	10.1
Peer Group	8	1.9
Peer-related service- Other (specify)	9	2.1
Prosocial Skills Training (specify)	49	11.6
Prosocial Sport-Related Activity (specify)	1	0.2
School-based organized extracurricular activity/sports	5	1.2
Social Skills Training	4	0.9
Strengths-based - Organized program or curriculum (specify)	2	0.5
Strengths-based Other (I.e. Equine Therapy, Sports)	6	1.4
Volunteer Work (not court mandated)	1	0.2
Work Placement	4	0.9

Responsivity-Only Services:

Service Type Final Description	Youth Count	% of sample
Aftercare	5	1.2
Case Management	38	9.0
Crisis Intervention	11	2.6
Educational Services - Other (e.g. special education program, tutoring, PREP)	6	1.4
General Counseling	28	6.6

Group Home- Generic	7	1.7
Group Home - Mental Health	2	0.5
Medication Management	14	3.3
Mental Health – Other (I.e. ICC session)	9	2.1
MH counseling - (i.e. individual, group, outpatient)	104	24.5
PRE-D SHELTER CARE	5	1.2
Residential Treatment Facility - Psychiatric	1	0.2
Secure Treatment Facility	1	0.2
Special Needs Youth Services	1	0.2
Specialized Program Services	16	3.8
State 3 Psycho-Education	2	0.5

*Grey shading indicates the most common services in the tables

Table 6. Frequency of Services Received for Moderate and High Risk Youth ONLY (n = 239)

Risk-Reduction Services:

Service Type Final Description	Youth Count	% of sample (n=239)
Aggression Replacement Training (ART)	14	5.9
Alternative Schools	1	0.4
Anger Management	18	7.5
Attitude or Behavior-Related Curriculum - Other (I.e. Positive life changes, decision points)	13	5.4
Brief Strategic Family Therapy	3	1.3
CBT - MH specific	1	0.4
CBT Curriculum	12	5.0
D&A Counseling – (i.e. individual, group, outpatient)	42	17.6
D&A service - Other (specify) (I.e. CAP/SA program)	0	0
Dialectical Behavior Therapy*	1	0.4
Drug & Alcohol - Education/Prevention Classes	5	2.1
EPICS curriculum	42	17.6
Family Counseling	17	7.1
Family Preservation	8	3.3
Family Service - Other (I.e. Case Management)	1	0.4
Firesetting/Firestarter Treatment	2	0.8
Functional Family Therapy*	19	7.9
Gang Intervention Program	19	7.9
Moral Recognition Therapy (MRT)	4	1.7
Multisystemic Therapy*	33	13.8
Offense-Specific Classes	5	2.1
Parenting Skills Class	4	1.7
Secure Behavioral Programming	5	2.1

Sex Offender Counseling	5	2.1
Sex Offender Counseling – Group/classes	0	0
Sex Offender Treatment - Community	5	2.1
Sex offender treatment - residential	4	1.7
Therapeutic Foster Care	1	0.4
Victim Awareness/Empathy Training	1	0.4
Victim Mediation Activities	0	0

Strengths-Based Services:

Service Type Final Description	Youth Count	% of sample
Casey Life Skills	31	13.0
Employment - Other (I.e. CAYIP)	2	0.8
Independent Living Program/Housing	0	0
Job Training Skills (eg. Job Corp, Workforce Readiness Training)	5	2.1
Leisure/Recreational - Structured	3	1.3
Life Skills Classes/Training	19	7.9
Mentoring/Positive Role Model	30	12.6
Peer Group	0	0
Peer-related service- Other (specify) (I.e. Life Skills)	7	2.9
Prosocial Skills Training (specify)	18	7.5
Prosocial Sport-Related Activity (specify)	1	0.4
School-based organized extracurricular activity/sports	3	1.3
Social Skills Training	4	1.7
Strengths-based - Organized program or curriculum (specify)	2	0.8
Strengths-based Other (I.e. Equine Therapy, Sports)	4	1.7
Volunteer Work (not court mandated)	0	0
Work Placement	2	0.8

Responsivity-Only Services:

Service Type Final Description	Freq youth	% of sample
Aftercare	2	0.8
Case Management	28	11.7
Crisis Intervention	8	3.3
Educational Services - Other (e.g. special education program, tutoring, PREP)	5	2.1
General Counseling	18	7.5
Group Home- Generic	7	2.9
Group Home - Mental Health	2	0.8
Medication Management	11	4.6
Mental Health – Other (I.e. RDSS Preservation)	5	2.1
MH counseling – (i.e. individual, group, outpatient)	76	31.8

PRE-D SHELTER CARE	4	1.7
Residential Treatment Facility - Psychiatric	1	0.4
Secure Treatment Facility	0	0
Special Needs Youth Services	1	0.4
Specialized Program Services	7	2.9
State 3 Psycho-Education	2	0.8

*Grey shading indicates the most common services in the tables