THE AZYAS RESIDENTIAL AND REENTRY TOOLS: AN EMPIRICAL ASSESSMENT

A REPORT PREPARED FOR THE
ARIZONA DEPARTMENT OF JUVENILE CORRECTIONS

Michael D. Reisig, Ph.D.
Arizona State University
and
Deborah Jones, Ph.D.
Arizona Department of Juvenile Corrections

January 2024

Table of Contents

Executive Summary

An empirical assessment of the Arizona Youth Assessment System (AZYAS) Residential and Reentry tools was conducted, using a cohort of 394 youths released from the Arizona Department of Juvenile Corrections secure care to community supervision. The assessment aimed to answer several research questions within the context of the Arizona Department of Juvenile Corrections sample.

1. Does the distribution of AZYAS scores align with recommended cut-offs?
2. Does the occurrence of recidivism vary across different risk levels?
3. Does the empirical evidence support the predictive validity of the AZYAS-Residential and AZYAS-Reentry?
4. Does each domain within the AZYAS exhibit predictive validity?
5. Do higher AZYAS scores correspond to increased odds of recidivism, while controlling for demographic variables?

The analyses also explored the correlations between the two tools (and the domains), the impact of the Covid-19 pandemic, and implementation of quality assurance protocols for the AZYAS tools.

Official records from 2019 to mid-2023 formed the dataset for this study, which included multiple measures that can be classified into three primary categories. Three recidivism measures—noncompliance with supervision conditions, issuance of a warrant, and revocation—were used as the primary outcome variables. Central predictor variables comprised AZYAS scores, domain scores, and assessment items from both tools. Additional measures, such as sociodemographic information, juvenile justice involvement, and other factors were used.

The data were analyzed using various statistical techniques, yielding the following key findings:

- The distribution of scores for both AZYAS tools (residential and reentry) was consistent with expectations.
- Recidivism varied across the different risk levels, as expected. However, in terms of predictive validity, the “moderate-” and “high-risk” groups were very similar in terms of recidivism.

- The predictive validity of both AZYAS tools has improved across the three time periods included in the study—pre-COVID, COVID, and post-COVID—suggesting that in-house quality assurances were effective.
- Both AZYAS tools (residential and reentry) predict recidivism under rigorous conditions.
- The magnitude of correlations for total AZYAS risk score and recidivism are consistent with prior research falling in the “moderate” to “strong” echelons.
- The current study replicated previous research on the AZYAS-Residential showing two domains—Family & Living Arrangements and Education & Employment—do not improve predictive validity of the tool.
- Three domains—Juvenile Justice History, Peers and Social Support, and Substance Abuse, Mental Health, and Personality—were the strongest domains predictive of recidivism for both AZYAS tools.
- “Family member arrested” plays an important role in the AZYAS-Reentry tool and warrants further investigation.
- Recommend keeping “Family & Living Arrangements” and “Education & Employment” in the AZYAS-Reentry.
- Odds of recidivism increase significantly as risk scores increase, while controlling for other demographic variables. This finding was observed for both AZYAS tools.

These findings carry implications for policy and practice. The score distributions and the similarities in recidivism rates between "moderate-" and "high-risk" require additional research to determine how to better distinguish between these two groups. The observations that three domains—Juvenile Justice History, Peers and Social Support, and Substance Abuse, Mental Health, and Personality—are consistent robust predictors supports tailoring interventions to address these specific risks. The improved predictive validity across different time periods suggests that the in-house quality assurances are effective, supporting their continued use. Moving forward, the results support expanded application of the AZYAS tools for treatment decisions, such as dosage determination. Finally, continued research is crucial to refine the utility of the AZYAS in evidence-based juvenile justice practices.

Overview of the Study

In early 2023, the Arizona Department of Juvenile Corrections (ADJC) partnered with the School of Criminology and Criminal Justice at Arizona State University (ASU) to empirically assess the AZYAS-Residential and Reentry tools. The effort took a highly collaborative approach, with both ADJC and ASU actively contributing to the study. This report conveys the procedures used and presents the findings.

The empirical assessment considered several research questions in the context of the ADJC sample, which were as follows:

1. Does the distribution of AZYAS scores align with recommended cut-offs?
2. Does the occurrence of recidivism vary across different risk levels?
3. Does empirical evidence support the predictive validity of the AZYAS-Residential and AZYAS-Reentry?
4. Does each domain within the AZYAS exhibit predictive validity?
5. Do higher AZYAS scores correspond to increased odds of recidivism, while controlling for demographic variables?

The empirical assessment of these questions was accompanied by additional analyses, such as correlations between the two AZYAS tools, the impact of Covid-19, and the implementation of quality assurance protocols for the administration of the AZYAS tools.

To address these questions, performance benchmarks outlined in the AZYAS manual and prior research (see McCafferty et al., 2017) served as the primary evaluative framework. Alternatively, in specific instances, standard statistical criteria was applied to facilitate analyses with pertinent information on juvenile risk and needs assessment tools. This approach not only facilitated a nuanced understanding of the tools, but also enabled comparisons with relevant studies on juvenile risk and needs assessment. To provide a contextual foundation for these analyses, various sample statistics were assessed, which provided baselines for comparison and aided in the interpretation of findings. This combined methodology aims to rigorously investigate and contribute valuable insights to the AZYAS tools.

Background

Basics of Risk Assessment

A risk assessment tool refers to a systematic instrument used for evaluating and quantifying the likelihood an individual will engage in criminal or delinquent behavior. When administered to criminal justice-involved individuals, the outcome of interest is typically recidivism (e.g., parole revocation). Risk assessment tools play an important role in the field of juvenile justice, often contributing to the formulation of an evidence-based policy and practice. Such tools are intended to help achieve the overarching objective of enhancing youth success through a targeted approach to addressing criminogenic factors, thereby reducing the likelihood of recidivism. These tools contribute to decision-making by offering an objective and standardized evaluation of criminogenic factors that existing research affirms are linked to crime, delinquency, and recidivism. This information empowers justice professionals—judges, probation officers, and correctional personnel—to tailor interventions and strategies based on the individually assessed level of risk. Furthermore, risk assessment tools play a pivotal role in enhancing efficiency of the justice system by guiding administrators on the best allocation of resources and the prioritization of interventions for individuals at a higher risk of reoffending.

In Arizona, the primary set of risk tools employed is the Arizona Youth Assessment System (AZYAS), a close derivative of the Ohio Youth Assessment System (OYAS). Developed by researchers at the University of Cincinnati (Latessa et al., 2009), the OYAS is a validated actuarial risk and need assessment tool. The AZYAS is comprised of five specific risk assessment tools: Diversion, Detention, Disposition, Residential, and Reentry. While the Diversion and Detention tools primarily inform decisions regarding the diversion or detention of a youth, the results from the Disposition, Residential, and Reentry tools identify criminogenic needs and reoffending risks among juveniles. These results, combined with

family feedback and other pertinent information, guide the formulation of individual case plans, complete with defined goals and objectives that address identified needs and risks.

The Diversion, Detention, and Disposition tools are administered by the courts, through county probation departments, during the respective stages of the justice system. The ADJC uses the AZYAS-Residential and AZYAS-Reentry tools for its processes. The AZYAS-Residential is administered during the intake process at Adobe Mountain School, typically within the first two weeks of admission. Trained and certified caseworkers administer the tool, involving a semi-structured interview with the youth, gathering collateral information from sources such as parents or school officials, reviewing official records, and employing self-report information obtained through the AZYAS survey. The results of the AZYAS-Residential guide treatment planning and, at times, other decisions such as unit placement. Additionally, the ADJC uses information such as the aggregated percentage of youth falling into each stratum—low, moderate, and high—to gain a comprehensive understanding of the committed population and their respective needs.

The AZYAS-Reentry is administered while youth are in secure care, typically a few weeks before being released to community supervision. Only youth being released to community supervision are administered this tool. Trained and certified parole officers administer the tool, which like the AZYAS-Residential, involves conducting a semi-structured interview, gathering collateral information, reviewing official files, and incorporating self-reported answers from the AZYAS survey. The results are used to guide supervision decisions and to provide an understanding of the unique risks and needs of the individuals entering community supervision.

The use of the AZYAS aligns with the state's commitment to evidence-based practices and data-driven decision making. It is believed that employing these tools in tandem with other evidence-based practices will enhance public safety, ensure fair and equitable

justice practices, and increase the likelihood of success among individuals involved in the justice system. These tools also contribute significantly to the state's efforts to tailor interventions so that they address the specific needs and risks of individuals at different stages of their involvement in the justice system, which should ultimately contribute to a more effective and targeted approach to rehabilitation and public safety.

History of the AZYAS

In 2011, the Arizona Supreme Court's Juvenile Justice Services Division (JJSD) collaborated with the University of Cincinnati to adapt the OYAS for use within the state. The resulting system, named the Arizona Youth Assessment System (AZYAS), was uniformly implemented across all fifteen Arizona counties and the Department of Juvenile Corrections. This unified adoption ensures a standardized set of tools and a common framework, promoting familiarity among all stakeholders, facilitating meaningful comparisons, and enabling the identification of longitudinal changes in youth risk levels over time.

Prior to the AZYAS, the Arizona Department of Juvenile Corrections (ADJC) was administering a risk tool that they had developed and validated using their population. This tool, the Recidivism Risk Instrument (RRI), calculated risk levels using data from the Criminogenic and Protective Factors Assessment (CAPFA) and official delinquency records. Information for the CAPFA was gathered using file review, interviews with the youth, their families/caregivers, and other collateral contacts, and related testing. The ADJC has conducted a comparative assessment of the RRI and AZYAS, finding that the latter better predicted the outcomes of interest and also better differentiated outcomes across risk categories.

Beginning in 2012, the ADJC began administering the AZYAS-Residential tool to all incoming commitments in lieu of the RRI. This tool, designed for post-adjudication

placement decisions or residential intake with an intended stay exceeding three months, assesses seven domains: Juvenile Justice History; Family and Living Arrangements; Peers and Social Support Network; Education and Employment; Pro-Social Skills; Substance Abuse, Mental Health, and Personality; and Values, Beliefs, and Attitudes. The tool informs the development of juvenile treatment plans and facilitates decision-making concerning the changes in the needs of the secure care population.

In 2017, the ADJC worked with the University of Cincinnati's Corrections Institute to validate the AZYAS-Residential, assessing the tool's measurement structure and predictive validity using a diverse sample of 680 youth released from secure care (McCafferty et al., 2017). The combined AZYAS score demonstrated moderate predictive power, maintaining expected tiers and significant differences across low, moderate, and high risk levels in multivariate statistical models. Notably, the "Family and Living Arrangements" and "Education and Employment" domains did not possess predictive validity, which lead to the removal of points from these domains in the overall risk score calculations following University of Cincinnati researchers' recommendations.

Partial use of the AZYAS-Reentry tool began in 2014 for juveniles being released to community supervision. Assessing criminogenic risk and needs at the time of release, the Reentry tool scores the same seven domains as the AZYAS-Residential, but with items tailored specifically for the stage of release. By 2018, administration of the tool became consistent, with all youths released to conditional supervision undergoing assessment. Initially, the results from the AZYAS-Reentry informed decision-making regarding population risk and needs.

In February 2019, the ADJC made modifications to its case management and supervision practices along with its corresponding policy to better align with the use of the AZYAS. Based on the risk level assessed by the AZYAS-Reentry, the ADJC recommends

varying lengths of supervision and contact standards for each youth. Specifically, “high risk” youths are recommended to be supervised for 240 days in the community, with a minimum of one face-to-face weekly contact with the youth and a minimum of two face-to-face contacts monthly (bi-weekly) with their family/legal guardian/person(s) or significant community services providers. For “moderate risk” youths, the recommended supervision length is 180 days, with a minimum of one face-to-face bi-weekly contact with the youth and a minimum of two face-to-face contacts monthly (bi-weekly) with their family/legal guardian or significant community service provider. It is recommended that “low risk” youths be supervised for 90 days, with a minimum of one face-to-face monthly contact with the youth and a minimum of one face-to-face monthly contact with their family/legal guardian or significant community service provider. The parole supervisor has the discretion to increase the required contacts for any risk level if there is a lack of progress. The new standards were fully implemented in January 2020.

The Covid-19 pandemic required some changes in community corrections across the nation. In Arizona, during this time (roughly from June 2020 to November 2021) there was a notable shift in the supervision of youth. Specifically, there was a reduction in contact and in-person interactions with parole officers as well as other community service providers. Parole officers were tasked with providing shift coverage inside the facility due to staffing shortages, resulting in limited time for caseloads, especially youth interactions. Previously unscheduled face-to-face home visits with youth became planned interactions, with some being replaced by phone or video contacts when COVID symptoms were reported. Group home visits were restricted in instances where the home experienced positive COVID cases. Overall, contact standards for supervision were inconsistently monitored or enforced. Additionally, some youth faced challenges in substance use monitoring, as testing centers refused tests for symptomatic individuals. Educational difficulties surfaced with the transition to

remote/online classes, and the quality of community treatment declined with the reliance on telemedicine appointments. In addition, release to group homes was occasionally delayed for youth testing positive at the expected time of release.

In responding to non-compliant youths on community supervision, the ADJC warrant team focused on those meeting "high-risk" criteria, which included behaviors endangering individuals or the community. Review and approval to apprehend were required from key administrators. Although the warrant issuance process remained unchanged, there was no pursuit of technical or abscond warrants unless the situation was elevated to "high-risk." The Post-COVID era (from December 2021 to the present) represents a return to routine supervision practices for youth.

To further ensure proper administration of the AZYAS, in early 2022, the ADJC initiated the implementation of quality assurance protocols. Specifically, measures were introduced to ensure that only individuals who had undergone formal certification training and successfully passed the certification examination were authorized to administer the AZYAS. Moreover, a yearly refresher training program was established, and as of 2023, all certified users of the AZYAS were mandated to complete this training to maintain their eligibility for administering the assessment tools. Lastly, a fidelity check protocol was developed. This protocol entails a master trainer observing a certified user as they administer the AZYAS, verifying that the process aligns with the guidelines outlined in the AZYAS manual, including the accurate scoring of items. All certified users are required to undergo an annual fidelity check, and in the event of a failure, additional training is mandated to ensure their compliance with the established guidelines.

Available Research

There is no shortage of actuarial risk instruments designed to gauge the needs and risks of criminal justice-involved individuals. Not surprisingly, this roster of instruments has

received considerable attention among criminologists, psychologists, and others. This attention has resulted in a very large research literature. Indeed, a search of two relevant terms (i.e., recidivism + risk) on Google Scholar resulted in 219,000 results. Narrowing the search by adding a third term (i.e., juvenile) resulted in 97,900 results. Many of these studies focus on different populations (e.g., adults) and risk instruments than the current study. For this study, the search terms OYAS and AZYAS were also used. This reduced the relevant results considerably. Nevertheless, the search yielded studies focused on parts of the juvenile justice process (Campbell et al., 2020), youth with different life experiences (Campbell et al., 2023), and juveniles adjudicated for specific offense types (Papp et al., 2020). Within this voluminous and diverse research literature, two studies emerged as the most relevant for the purposes of the current study.

The first study, conducted by Lovins and Latessa (2013), tested the effectiveness of the different OYAS tools (i.e., diversion, detention, disposition, residential, and reentry) at each stage of the juvenile justice process in the state of Ohio. Using data from a sample of youth collected between September 2007 and July 2008, Lovins and Latessa assessed the predictive validity of the residential and reentry tools—both of these analyses were directly related to the research objectives of the present study. The authors found that the OYAS-Residential tool distinguished between low-, moderate-, and high-risk youth in terms of recidivism (i.e., rearrest). The correlation estimate between the OYAS-Residential and rearrest for the total sample of youth in residential care (N = 540) was .27. These analyses were repeated using the OYAS-Reentry tool and a sample of youth under community supervision (N = 250). Lovins and Latessa found that the OYAS-Reentry tool also distinguished between low-, moderate-, and high-risk youth in terms of rearrest rates. The correlation between the OYAS-Reentry and rearrest for the sample of youth being supervised in the community was .41. Overall, the results from Lovins and Latessa were encouraging in

that they demonstrated that the two OYAS tools most relevant to the present study—Residential and Reentry tools—appear to stand on sound empirical footings.

The second study, which was conducted by McCafferty et al. (2017), provided a rigorous assessment of the AZYAS-Residential tool using a sample of youth under secure care in Arizona. The authors used a large sample of youth, observing them across two time periods—12 months (N = 680) and 24 months (N = 387). Importantly, McCafferty et al. found that the AZYAS-Residential scores were significantly correlated with recidivism (i.e., returning to secure care or prison) at both the 12 month (r = .26) and 24 month (r = .30) periods. The authors did find, however, that two of the seven domains were not predictive of recidivism. These two domains were "Family and Living Arrangements" and "Education and Employment." Based on these findings, McCafferty et al. recommended that they be omitted from the AZYAS-Residential tool. A summary of the key findings from both studies are provided in Table 1.

Table 1. Results from Relevant Studies

Study	Sample	Risk Assessment Tool	Recidivism Measure	Correlation Coefficient
Lovins & Latessa (2013)	539 Ohio youth	OYAS-Residential	Re-arrest	.27
Lovins & Latessa (2013)	250 Ohio youth	OYAS-Reentry	Re-arrest	.41
McCafferty et al. (2017)	680 Arizona youth for 12 month follow up	AZYAS-Residential	Return to secure care or prison	.26
McCafferty et al. (2017)	387 Arizona youth for 24 month follow up	AZYAS-Residential	Return to secure care or prison	.30

Both of the research studies discussed in this section provide guidance for the present study. For starters, they indicate clearly that the AZYAS tools should clearly distinguish risk group classifications (low, moderate, and high) by recidivism rates. Secondly, extant studies demonstrate that the AZYAS tools possess predictive validity. More specifically, in terms of

bivariate correlational analyses, the relationship between total AZYAS scores and recidivism should range between .26 and .41. These two takeaways proved useful when interpreting the data in this study.

Study Methods

Data and Sample

This study used a sample of 394 youths who were released from secure care to community supervision between February 1, 2019 and July 30, 2023. Information was collected for the entire term of community supervision, meaning the end date of data collection for each record corresponded with the end date of supervision. The end of supervision entails either successful completion or revocation. All data were from official records derived from the ADJC's electronic case management systems, which included demographic information, delinquent history, prior confinement, recidivism information, and the AZYAS item scores. Information for 54 youth (or 13.7% of the full sample) were not available for the AZYAS-Reentry tool. For certain analyses, the sample was divided into three subgroups that were related to the pandemic: Pre-COVID (February 2019 to May 2020; n = 145), COVID (June 2020 to November 2021; n = 165), and Post-COVID (December 2021 to July 2023; n = 85). Unless otherwise stated, the full sample was used to conduct statistical assessments.

Measures

A number of different variables were used throughout the study. Some of the measures were used for descriptive purposes, whereas others were used to test the predictive validity of the AZYAS-Residential and Reentry tools. This section discusses each of the measures that were used.

Recidivism measures. Previous researchers have used a variety of recidivism measures to test the predictive validity of actuarial risk measures. Three measures were used in this study. The revocation of parole is regularly used as a recidivism measure for formerly-

incarcerated individuals under community supervision (see Kaeble, 2023). For this study, *parole revocation* was a binary-coded variable indicating whether parole was revoked (1 = yes, 0 = no). This variable captured two types of revocation (i.e., technical and delinquent). The second variable, *warrant issued*, reflected whether a warrant was issued for the youth. This variable captured instances where community corrections authorities issued a warrant because of new offenses or technical violations, such as running away. This measure was also binary coded (1 = yes, 0 = no). Finally, *noncompliant* was a binary-coded measure that reflected instances where youth violated at least one of the conditions of community supervision (1 = yes, 0 = no). Although opinions vary regarding which recidivism measure might work best, this study made use of three different measures—a strategy known as measure triangulation. This approach helps to address the weaknesses of any one measure. Additionally, observing consistency in the results across the three measures will increase confidence in the findings.

AZYAS measures. Both the *AZYAS-Residential* and *AZYAS-Reentry* tools were used in this analysis. These variables encompass the overall risk assessment score for each individual in the sample. These scores were calculated as the summation of all items, which were coded as "0" when absent and "1" or "2" when present. Importantly, items from domains previously identified lacking predictive validity—"Family and Living Arrangements" and "Education and Employment"—within the AZYAS-Residential tool were excluded from the scale. The overall scores for both full scales were employed and scores were also grouped into three categories: low, moderate, and high risk. The cut-points for these groups were determined based on standardized thresholds that were previously established for each tool, ensuring consistency in the categorization process. Scores from the seven AZYAS domains were included in some facets of the study. These domains were as follows: Juvenile Justice History; Family and Living Arrangements; Education and

Employment; Peers and Social Support Networks; Values, Beliefs, and Attitudes; Prosocial Skills; and Substance Abuse, Mental Health, and Personality. Individual items from the tools were also used in the analysis. Descriptive information for the individual domains and items is provided in Appendix A (Residential) and Appendix B (Reentry).

Additional variables. A number of other variables were included in the analyses. *Sex* was a binary-coded variable, indicating the biological sex of the youth that was assigned at birth (1 = male, 0 = female). Racial identity originally included seven categories: white, Hispanic, African American, Asian, American Indian, Pacific Islander, and biracial (e.g., Hispanic White). Because comparatively few individuals represented Asian, American Indian, and the Pacific Islander groups, these individuals were combined into one group (i.e., other minorities). Four binary-coded racial identity variables were included: *Hispanic*, *African American*, *biracial*, and *other minorities* (1 = yes, 0 = no; non-Hispanic whites serve as the reference group in the regression analyses). *Age at release* was measured in years and signified youths' age at the time of release from custody to community supervision. *Primary language English* was a binary-coded variable that indicated whether English was their primary language (1 = yes, 0 = no).

Multiple variables related to juvenile justice system involvement were included. *Most severe offense* originally included several categories and reflected the most serious offense for which a youth was adjudicated for, including: drug offense, property offense, crimes against person, weapons offense, public order, and other. For the correlational analyses, however, *drug offense* and *crime against person* were both operationalized as binary variables (1 = yes, 0 = no). The *county of commitment* was recorded as the jurisdiction of the juvenile court where the youth received a disposition of commitment to the ADJC. The *length of stay* in secure care was measured in days, representing the duration each youth spent at Adobe Mountain School before release to community supervision. *Time on parole* was also

measured in days, indicating the duration each youth spent on parole before termination via either revocation or discharge. *Prior petitions* reflected the number of unique petitions with an adjudicated offense for each youth in the sample.

Child welfare involvement was a binary-coded variable that indicated whether a welfare agency, such as the Department of Child Safety or Tribal Liaison, was listed as the primary responsible party in lieu of the family (1 = yes, 0 = no). Two variables related to programming within secure care were included. *Sexualized Behavior Treatment Program* (SBTP) variable was binary coded, representing whether youth were designated with sexually abusive behaviors during the intake process and subsequently assigned to the SBTP (1 = yes, 0 = no). Similarly, the *Seven Challenges* variable indicated whether youth were identified as having substance abuse problems and assigned to the Seven Challenges program (1 = yes, 0 = no). Lastly, a variable intended to capture continued contact and support from family during their stay was included. This measure captured whether youth received *in-person visits* during their stay in secure care (1 = yes, 0 = no). This measure did not take into account contact or support received through other mechanisms (e.g., phone calls, video calls, or mail).

Upon admission to Adobe Mountain School, all youth underwent a Family Assessment, conducted by parole officers through in-person or telephone interviews with the parents, guardians, or assigned Department of Child Safety caseworkers. This assessment, which was initiated in December 2018, contributed information that was used to create several variables: *history of running away* (1 = yes, 0 = no), *incarcerated family member/ caregiver* (1 = yes, 0 = no), *victim of abuse* (1 = yes, 0 = no), and *youth is a parent (or soon to be)* (1 = yes, 0 = no).

Analysis Plan

Several different statistical procedures were used in this study. Descriptive statistics, including count frequencies, percentages, mean scores, and standard deviations, were used to

characterize the sample, examine score distributions, and facilitate comparisons. Cross-tabulation analysis was used in select instances to simultaneously assess the distribution of two variables (Miller & Whitehead, 1996). Visual representations of these analyses are presented in figures throughout the Results section.

To assess the direction and magnitude of relationships between two variables, such as between AZYAS-Reentry scores and revocation, Pearson's correlation coefficients (*r*) were estimated. Estimates range between -1 and +1. The closer an estimate is to a value of ±1, the stronger the relationship (Licht, 1995). To maintain consistency in the interpretation of relationship strength, this study applied the thresholds used by McCafferty et al. (2017) in their evaluation of the AZYAS-Residential: values less than .10 were considered "not predictive," those between .10 and .24 were categorized as "weak," correlations between .25 and .37 were considered "moderate," and estimates exceeding .37 were deemed "strong."

Finally, multivariate regression models were estimated to examine relationships between predictor variables, such as AZYAS-Reentry scores, and the outcome measures of interest (e.g., revocation). Multivariate regression is a robust tool because it enables the statistical control of other important predictor variables (e.g., age at release). Because the recidivism variables were binary coded (1 = yes, 0 = no), logistic regression was used. This modeling approach provides odds ratio estimates, which can provide insights into the impact of predictor variables on the relative likelihood of the studied outcome (Hosmer et al., 2013).

Results

Sample Characteristics

Descriptive statistics for the sample of youth are provided in Table 2. The sample was comprised of mostly males (87.2%; 12.8% female). In terms of racial identity, nearly a majority of the sample members (47.2%) identified as Hispanic, followed by 17.8% White, 16.7% Biracial (e.g., Hispanic-White), 14.5% African American, 3.6% American Indian, 0.6% Pacific Islander, and 0.3% Asian. The average age at release (in years) was 16.99 (SD =

.85). The breakdown by age group was as follows: 0.8% were 14, 13.2% were 15, 33.8% were 16, 44.4% were 17, and 7.9% were 18. A large majority of the sample (88.3%) reported that English was their primary language. Finally, nearly one-half of the sample (49.5%) were from Maricopa County. The breakdown for the other counties include: Apache (0.3%), Cochise (4.1%), Coconino (0.8%), Gila (1.3%), Graham (2.3%), Greenlee (1%), La Paz (0%), Mohave (8.2%), Navajo (0.8%), Pima (8.7%), Pinal (3.6%), Santa Cruz (1.3%), Yavapai (4.3%), and Yuma (14%). The typical individual in the sample was 17-years-old, Hispanic, male, from Maricopa County, and English was their primary language.

The sample was comprised of youth whose juvenile justice system involvement varied. For example, the breakdown for the most serious crime youth have been adjudicated for was as follows: 15.5% drugs, 32.5% crimes against person, 8.1% public order, 32% property, 5.6% weapons, and 6.3% other (e.g., truancy). The average length of time spent in secure care was 316.19 days (SD = 133.13). Put differently, slightly more than one-quarter of youth (25.6%) in the sample spent one year or more in secure care, a majority spent between six months and one year in custody (70.1%), and a small group (4.3%) spent less than six months in secure care. The average length of parole was 139.34 days (SD = 120.79). Only a small portion of the sample spent less than one month (11.2%) or more than one year (6.3%) on parole, with larger groups spending between 1 and 3 months (33.8%), 3 and 6 months (27.9%), and 6 and 12 months (20.8%). The average number of prior petitions resulting in an adjudicated offense was 4.61 (range 0 to 15). Nearly two-thirds of the sample (66%) had at least four prior unique petitions. The breakdown for the rest of the sample was as follows: 11.2% had either 0 or 1 prior petition while 33.8% had either 2 or 3 prior petitions. Overall, the sample was relatively diverse in terms of juvenile justice involvement.

Table 2. Sample Characteristics

Variables	n	%
Sex		
Male	342	87.2%
Female	50	12.8%
Racial Identity		
White	70	17.8%
African-American	57	14.5%
Hispanic	184	46.7%
Asian	1	0.3%
American Indian	14	3.6%
Pacific Islander	2	0.6%
Biracial	66	16.7%
Age at Release		
14 years	3	0.8%
15 years	52	13.2%
16 years	133	33.8%
17 years	175	44.4%
18 years	31	7.9%
Primary Language English		
Yes	348	88.3%
No	46	11.7%
County of Commitment		
Apache	1	0.3%
Cochise	16	4.1%
Coconino	3	0.8%
Gila	5	1.3%
Graham	9	2.3%
Greenlee	4	1.0%
La Paz	0	0.0%
Maricopa	194	49.5%
Mohave	32	8.2%
Navajo	3	0.8%
Pima	34	8.7%
Pinal	14	3.6%
Santa Cruz	5	1.3%
Yavapai	17	4.3%
Yuma	55	14.0%
Most Serious Offense		
Drugs	61	15.5%
Crimes against Person	128	32.5%
Public Order	32	8.1%
Property	126	32.0%
Weapons	22	5.6%
Other	25	6.3%
Length of Stay		
Less than 6 months	17	4.3%
6 months to 1 year	276	70.1%
More than 1 year	101	25.6%

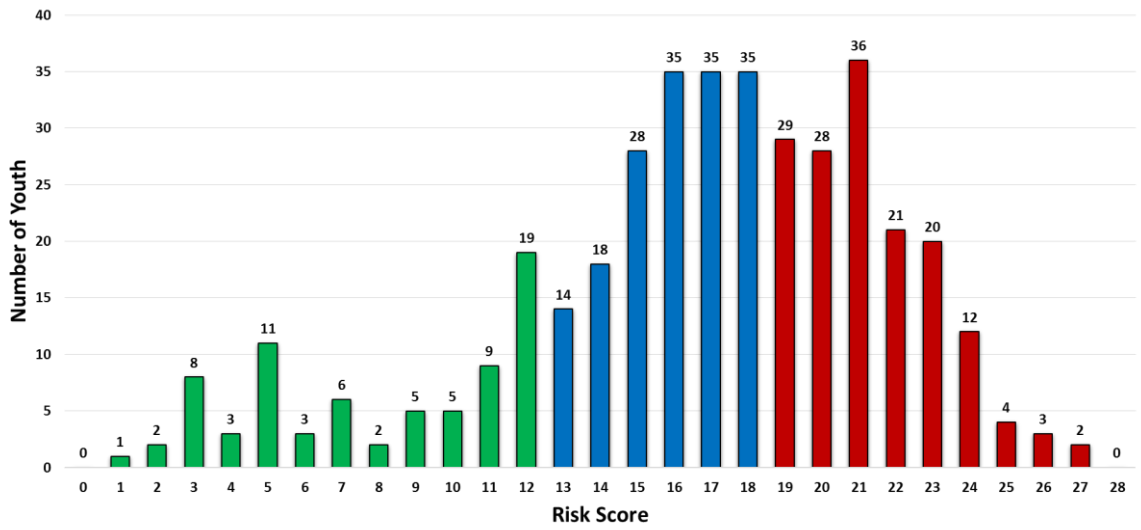
Table 2. Sample Characteristics Continued

Variables	n	%
Time on Parole		
Less than 1 month	44	11.2%
1 to 3 months	133	33.8%
3 to 6 months	110	27.9%
6 to 12 months	82	20.8%
More than 1 year	25	6.3%
Prior Petitions		
0 or 1 petitions	44	11.2%
2 or 3 petitions	90	22.8%
4 to 6 petitions	177	44.9%
7 or more petitions	83	21.1%
Child Welfare Involvement		
Yes	44	11.2%
No	350	88.8%
Sexualized Behavior Treatment Program (SBTP)		
Yes	22	5.6%
No	372	94.4%
Seven Challenges		
Yes	263	66.8%
No	131	32.2%
In-person Visits		
Yes	266	67.5%
No	128	32.5%
History of Running Away		
Yes	285	72.3%
No	109	27.7%
Incarcerated Family Member/Caregiver		
Yes	197	50.0%
No	197	50.0%
Victim of Abuse		
Yes	109	27.7%
No	284	72.3%
Youth is a Parent (or soon to be)		
Yes	57	14.5%
No	337	85.5%

A small portion of the youth in the sample (11.2%) were the responsibility of a child welfare authority as opposed to their parents. Portions of the sample participated in specific programming during their time in secure care. For example, 5.6% participated in SBTP and 66.8% were involved in Seven Challenges. Participation in other programs, like Dialectical Behavior Therapy, was not included, as all youth are assigned to these programs, resulting in

100% participation. Approximately two-thirds (67.5%) of youth had in-person visits during their time at Adobe Mountain School. Nearly three-fourths of the youth in the sample had a history of running away from home. In terms of parental incarceration, one-half of the youth in the sample had a mother or father who had been imprisoned. Concerning prior victimization, 27.7% had been victimized (either physically, mentally, or sexually) at some time in their past. Finally, a small portion of the sample (14.5%) were parents of children (or were going to be in the near future). The sample appeared heterogeneous in terms of secure care experience and familial relations.

Figure 1. Distribution of AZYAS-Residential Risk Scores (N = 394)



The distribution of scores for the AZYAS-Residential is provided in Figure 1. As recommended by McCafferty et al. (2017) and consistent with ADJC practice, two domains—"Family and Living Conditions" and "Education and Employment" —were not included when calculating the total risk scores. The average score was 16.60 (SD = 5.25). "Moderate-risk" (scores range from 13 to 18; 41.1%, n = 162) and "high-risk" (scores range from 19 to 28; 40.6%, n = 160) were the two largest subgroups. The "low-risk" group was relatively small (scores range from 0 to 12; 18.3%, n = 72). Overall, the distribution shows a good portion of the sample clustered in the "moderate-to-high" range (i.e., scores between 16

and 21). These scores were consistent with what would be expected from a secure care population. What is more, the distribution of scores was similar to the AZYAS-Residential scores reported by McCafferty et al. (2017, p. 68). For descriptive information for all seven domains originally used in the AZYAS-Residential and the specific items, please see Appendix A.

Figure 2. Distribution of AZYAS-Reentry Risk Scores (N = 340)

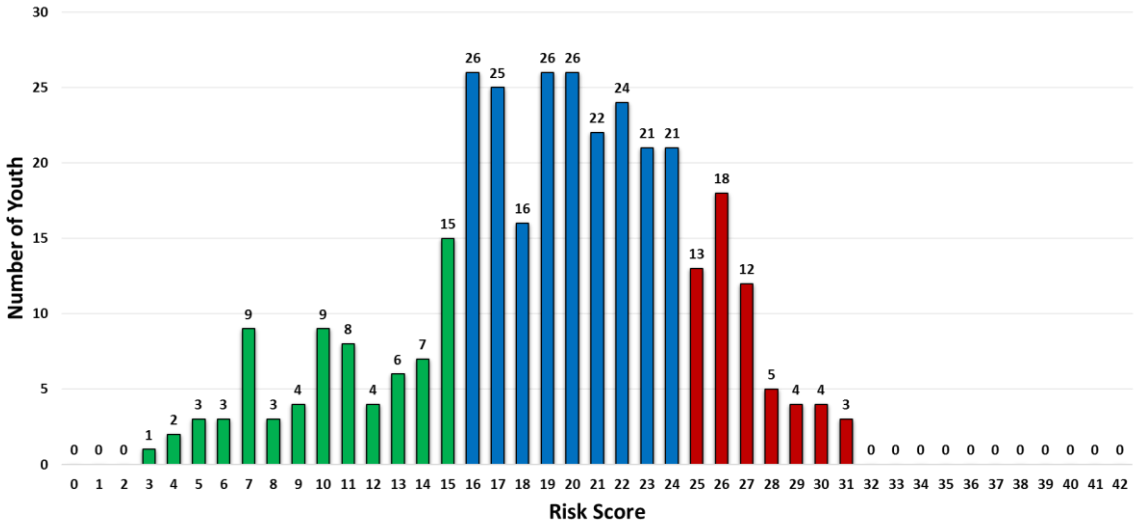


Figure 2 features the distribution of AZYAS-Reentry scores. These scores ranged from a possible 0 to 42. However, in the sample used in this study, the scores ranged from 3 to 31, with an average score of 19.12 (SD = 5.77). The largest cluster of youth represented the "moderate-risk" subgroup (scores ranged from 16 to 24; 61.8%; n = 210). The other two subgroups—"low-risk" (scores range from 0 to 15; 19.1%; n = 65) and "high-risk" (scores range from 25 to 42; 19.1%; n = 65)—were comprised of an equal number of youth. The composition of risk groups in terms of relative size was similar to those reported by Lovins and Latessa (2013, p. 86) who used the OYAS-Reentry and a sample of Ohio youth (i.e., 30% low, 42% moderate, and 28% high). According to McCafferty et al. (2017, p. 68), cut-offs for the three groups can be initially determined using 25th and 75th percentiles. For this study,

scores 0 to 16 fell within the 25th percentile (low risk). The moderate risk group was made up of scores between the 25th and 75th percentile (scores ranging from 17 to 23). Finally, scores exceeding the 75th percentile (scores greater than or equal to 24) were classified as high-risk. The distribution of risk scores in Figure 2 aligned closely with suggested cut-offs, although it was not a perfect match. Summary statistics for the individual domains of the AZYAS-Reentry and the specific items are displayed in Appendix B.

Figure 3. Recidivism Rates by Type

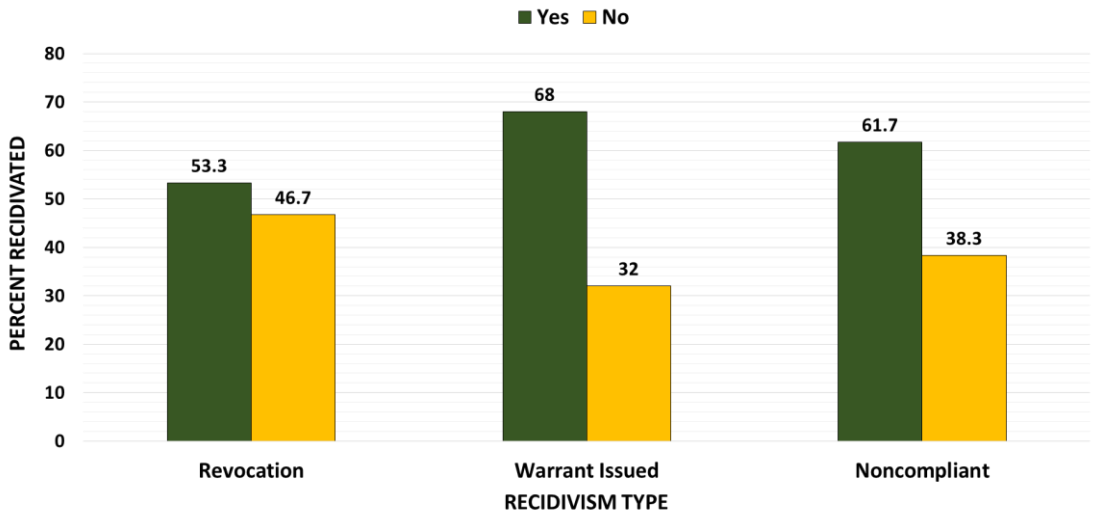


Figure 3 displays the distributions for the recidivism measures. Recall that three different variables were used. Of the 394 youth in the study, 53.3% had their parole revoked. Reasons for revocation varied. Nearly two-thirds (or 64.3%) had their parole revoked for involvement in delinquency. The remainder (or 35.7%) were found to have committed technical violations. The average length of time individuals who had their parole revoked were under community supervision was 106.5 days (SD = 94.89). The length of time these individuals were on parole ranged from 6 to 484 days. The frequency with which the remaining two recidivism events occurred was higher relative to revocation. Indeed, 68% of the youth in the sample had a warrant issued for their arrest during community supervision

and 61.7% were reported as noncompliant on at least one of the terms of their parole. In the "predictive validity" section of this report, these distributions were assessed across the three different risk groups for both the AZYAS-Residential and AZYAS-Reentry tools.

Figure 4. Recidivism Rates Across Covid-19 Subgroups

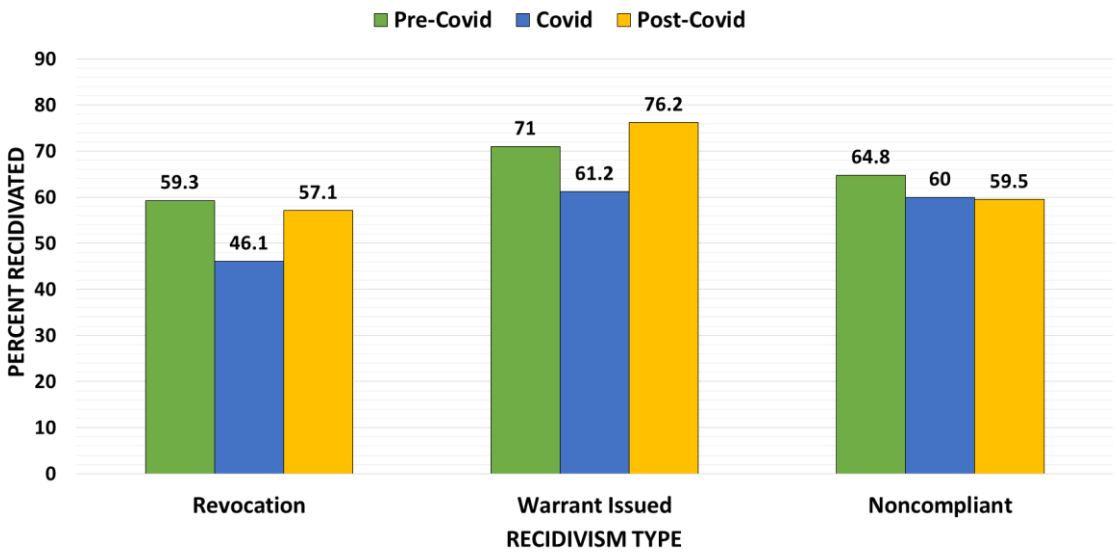


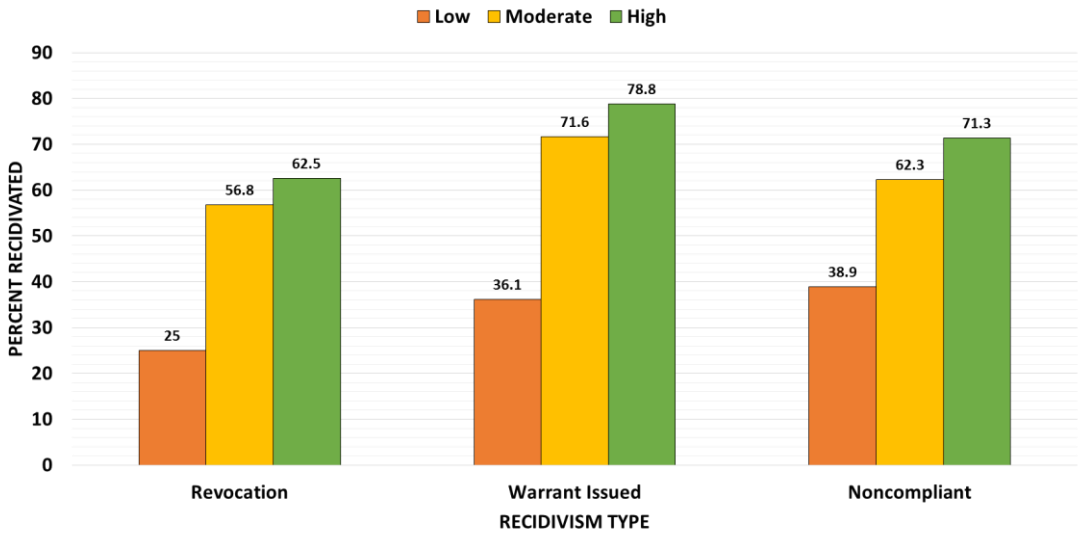
Figure 4 presents the occurrence of the different types of recidivism events across three time periods: Pre-COVID (February 2019 to May 2020; n = 145), COVID (June 2020 to November 2021; n = 165), and Post-COVID (December 2021 to July 2023; n = 84). Parole revocation was lowest during the pandemic (46.1%) when compared to the other time periods. This observation was expected given the reduced supervision in the community caused by understaffing issues at Adobe Mountain School that resulted in pulling officers from the community to assist and other restrictions. This lower rate of revocation may be related to longer times being served in the community before returning parole was revoked: 106.5 days during Pre-COVID, 120.2 days during COVID, and 84.8 days during Post-COVID. Technical reasons for revoking parole were slightly more common during the pandemic (39.5%) when compared to the pre-COVID (32.6%) and post-COVID (35.4%) periods. Although more frequent overall, a similar distribution of recidivism events was

observed across COVID periods for whether warrants were issued for youth, with the event being less common during the pandemic. Finally, when compared to parole revocation and warrant issued, the difference across time periods for noncompliance with parole conditions was comparatively modest. The average across the three groups was 61.4%. In summary, while some differences were observed across the three time periods, such variations were anticipated because of changes in staffing brought about by the pandemic.

Predictive Validity Assessment

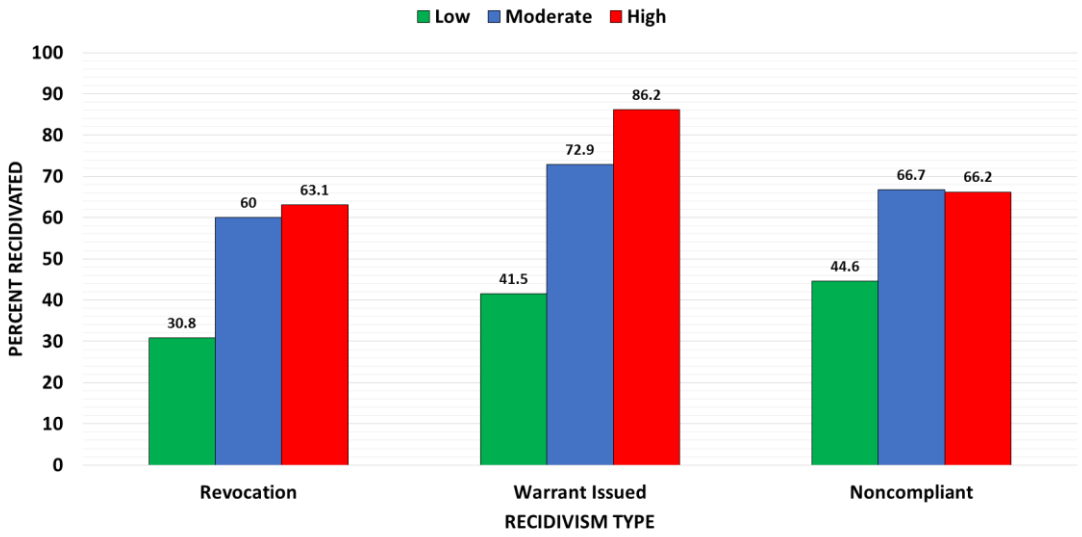
Three different statistical approaches were used to assess the predictive validity of both the AZYAS-Residential and the AZYAS-Reentry tools (i.e., the ability of the AZYAS to predict recidivism). The first approach involved calculating cross-tabulations using each of the three recidivism measures and the risk categories (i.e., low, moderate, and high). It was anticipated that the lowest level of recidivism would be observed in the low-risk group and the highest level in the high group, with the moderate-risk following in between these two. The results for the AZYAS-Residential risk groups are illustrated in graphical format in Figure 5.

Figure 5. Recidivism Rates Across AZYAS-Residential Risk Groups



The comparative results conform to expectations in that recidivism was more frequent as risk increased across groups. Simply put, parole revocation occurred more than twice as frequently for the high-risk (62.5%) and moderate-risk (56.8%) groups when compared to the low-risk group (25%). The relationship between the risk scores and revocation was statistically significant ($\chi^2 = 29.40$, $p < .001$). Subsequent analyses revealed that, in terms of revocation, the low-risk group was significantly different than the moderate- and high-risk groups. Differences between the latter two groups, however, was not statistically meaningful. These findings were indicative of potential under classification of youth in the moderate-risk group, which could result in moderate risk youth not receiving the level of supervision and services they need. Similar results were observed for the remaining two recidivism measures—warrant issued ($\chi^2 = 43.13$, $p < .001$) and noncompliant ($\chi^2 = 22.05$, $p < .001$). Once again, however, additional assessments showed that differences were restricted to comparisons with the low-risk group, suggesting that under classification of some moderate-risk youth may have occurred.

Figure 6. Recidivism Rates Across AZYAS-Reentry Risk Groups



The graphical depictions of recidivism across groups for the AZYAS-Reentry tool are provided in Figure 6. Turning first to revocation, the frequency of the event increased with each risk group—from a low of 30.8% of "low-risk" to a high of 63.1% for "high risk" (with moderate falling in between at 60%). The relationship between risk group classification and revocation was statistically significant ($\chi^2 = 19.25$, $p < .001$). Similar to the pattern of findings for revocation and the risk categories for the AZYAS-Residential tool, differences across groups were isolated to the low-risk group. Put simply, the level of revocation in the low-risk group was significantly different than what was observed in the "moderate-risk" and "high-risk" groups. The latter groups were not statistically distinguishable from one another in terms of revocation. As stated previously, this is an indicator of potential under classification. The results for the remaining two recidivism measures in Figure 6 supported this conclusion. For example, although the associations between risk classification and recidivism were significant for both warrant issued ($\chi^2 = 33.54$, $p < .001$) and noncompliant ($\chi^2 = 10.78$, $p < .01$), follow-up assessments revealed that only the low-risk groups could be statistically distinguished from the others.

Table 3. Correlations between Recidivism Measures and AZYAS-Residential Scores

	Recidivism Type		
Variables	Revocation	Warrant Issued	Noncompliant
Juvenile Justice History	.219*	.251*	.130*
Family and Living Arrangements	.019	.104*	.081
Peers and Social Support Network	.259*	.352*	.214*
Education and Employment	.107*	.127*	.083
Pro-Social Skills	.094	.193*	.120*
Substance Abuse, Mental Health, and Personality	.244*	.264*	.172*
Values, Beliefs, and Attitudes	.177*	.238*	.161*
AZYAS-Residential (5 domains)	.287*	.372*	.229*
AZYAS-Residential (7 domains)	.278*	.370*	.231*

* Statistically significant at the .05 level.

The second approach used to assess the predictive validity of the AZYAS tools involved Pearson's correlational analysis. Table 3 presents the correlation estimates for the individual AZYAS-Residential scores—including individual domains, the full (7 domains) AZYAS-Residential, and the revised AZYAS-Residential (5 domains)—and the three recidivism measures. Previous research (see McCafferty et al., 2017) showed that two domains (i.e., "Family and Living Arrangements" and "Education and Employment") in the AZYAS-Residential tool were not predictive of recidivism.

Given the large number of estimates, the task of interpreting the substantive meaning of the pattern of findings was eased by assessing average correlations estimates across the three recidivism measures. Doing so clearly demonstrated that the strongest correlates of recidivism were "Peers and Social Support Network" (average r = .275) and "Substance Abuse, Mental Health, and Personality" (average r = .227). "Family and Living Arrangements" had the weakest average correlation estimate with recidivism (average r = .068), followed closely by "Education and Employment" (average r = .106). On the face of it, these findings appeared to support ADJC's decision to remove these domains from the AZYAS-Residential. However, such a conclusion must also take into account the similar average correlation estimates observed for both the revised version of the AZYAS-Residential with 5 domains (average r = .296) and that of the original AZYAS-Residential with 7 domains (average r = .293). In short, both versions of the AZYAS-Residential were moderately correlated with recidivism, and the observed correlations were consistent with prior research (see Table 1).

Table 4. Correlations between Recidivism Measures and AZYAS-Reentry Scores

	Recidivism Type		
Variables	Revocation	Warrant Issued	Noncompliant
Juvenile Justice History	.246*	.300*	.106*
Family and Living Arrangements	.132*	.162*	.111*
Peers and Social Support Network	.189*	.225*	.168*
Education and Employment	.108*	.160*	.105*
Pro-Social Skills	.033	.060	-.048
Substance Abuse, Mental Health, and Personality	.182*	.257*	.112*
Values, Beliefs, and Attitudes	.106*	.138*	.025
AZYAS-Reentry	.240*	.311*	.143*

* Statistically significant at the .05 level.

Table 4 features the correlation coefficients for the AZYAS-Reentry scores and recidivism. Of the seven domains, "Juvenile Justice History" was, on average, the strongest correlate of recidivism (average r = .217), followed by "Peers and Social Support" (average r = .194) and "Substance Abuse, Mental Health, and Personality" (average r = .183). When comparing the results from Tables 3 and 4, the same three domains were the strongest correlates for both AZYAS tools, even though the scales for the specific domains differ in terms of content (e.g., number of items included in subscale). The weakest correlate in Table 4 was "Pro-Social Skills" (average r = .015). Indeed, this domain failed to demonstrate predictive power for any of the three recidivism variables. Overall, the AZYAS-Reentry scores were correlated with all three recidivism outcomes (r = .240 for revocation, .311 for warrant issued, and .143 for noncompliant). The average correlation across all three measures was .231. Although the results from this stage of gauging the AZYAS-Reentry appeared encouraging, a more robust assessment involving the use of multivariate statistics was required before more definitive conclusion could be reached.

Table 5. Correlations for AZYAS-Residential and Revocation across Time Three Periods

Variables	Revocation		
	Pre-COVID (n = 145)	COVID (n = 165)	Post-COVID (n = 84)
Juvenile Justice History	.068	.267*	.319*
Family and Living Arrangements	-.141	.100	.081
Peers and Social Support Network	.156	.280*	.389*
Education and Employment	.066	.174*	.099
Pro-Social Skills	-.057	.145	.237*
Substance Abuse, Mental Health, and Personality	.044	.311*	.450*
Values, Beliefs, and Attitudes	.061	.219*	.239*
AZYAS-Residential (5 domains)	.091	.330*	.474*
AZYAS-Residential (7 domains)	.072	.335*	.453*

* Statistically significant at the .05 level.

Correlation estimates for the AZYAS-Residential tool and revocation across the three time periods of interest—pre-COVID, COVID, and post-COVID—are presented in Table 5. The correlation estimates in Table 5 differ in magnitude (and sometime direction) for specific domains across time periods. For example, the estimate for "Pro-Social Skills" varies from -.057 in the pre-COVID period, to .145 in the COVID period, to .237 in the post-COVID period. The correlations for other domains, such as "Juvenile Justice History," follow a similar pattern, as do the total AZYAS-Residential scores featured near the bottom of the table. There are two possible explanations for these patterns. The first is that the AZYAS became predictive over time. This rationale did not appear valid, especially given earlier research conducted by McCafferty et al. (2017) demonstrating the tool's predictive power using a sample of Arizona youth. A second explanation is that the quality assurance protocols, fidelity checks, and continued training that were implemented by ADJC are having the desired effect. Please note that similar results were also observed for the AZYAS-Reentry and revocation across the three time periods (see Appendix C).

Table 6 displays correlation coefficients for additional variables, such as demographic factors, juvenile justice-related measures, and family variables. The interest in whether these variables were correlated with the recidivism measures was largely exploratory. Among the stronger and more consistent correlates included age at release, indicating that older youth were less likely to recidivate. This may be because youth age-out of delinquent involvement or because they age-out of ADJC supervision and subsequent law violations were not collected from adult records for this study. Time on parole was inversely related to revocation and warrant issued. However, time on parole was positively associated with noncompliant, indicating the longer youth stay on parole, the more likely they were to violate at least one condition of their supervision. The prior petitions variable was a relatively strong correlate of revocation and warrant issued. Youth involved in the SBTP were less likely to recidivate. This finding was consistent with recent research assessing the OYAS-Disposition tool (see Papp et al., 2020, p. 440). History of running away from home was linked to all three forms of recidivism. While these findings were interesting, it should be noted that the AZYAS tools were designed to capture many of these factors. Correlations between both AZYAS tools and the variables featured in Table 6 are presented in Appendix D.

Table 6. Correlations between Recidivism Measures and Additional Variables

	Recidivism Type		
Variables	Revocation	Warrant Issued	Noncompliant
Sex (1 = male)	.104*	.118*	-.063
African American	.067	.112*	.057
Hispanic	-.082	-.133*	-.016
Biracial	.038	.089	.046
Other Minority	-.002	.012	.065
Age at Release	-.290*	-.251*	-.175*
Primary Language English	-.087	-.073	-.039
Drug Offense	.021	-.037	-.023
Crime against Person	-.078	-.094	.012
Length of Stay	.074	.060	.010
Time on Parole	-.291*	-.145*	.342*
Prior Petitions	.418*	.373*	.088
Child Welfare Involvement	.009	-.033	.014
Sexualized Behavior Treatment Program	-.215*	-.260*	-.127*
Seven Challenges	.257*	.267*	.031
In-person Visits	.046	.036	.033
History of Running Away	.160*	.172*	.166*
Incarcerated Family Member/Caregiver	.020	.033	.037
Victim of Abuse	-.001	-.002	.044
Youth is a Parent (or soon to be)	-.150*	-.213*	-.017

* Statistically significant at the .05 level.

Multivariate Regression Analyses

The third and most rigorous approach for testing predicting validity involved estimating multivariate logistic regression models that included demographic variables. These models take into account the influence of such factors and provide more robust estimates than bivariate correlation estimates. Additionally, logistic models also yield exponential coefficients—referred to as "odds ratios"—that can be interpreted in terms of decreased or increased odds of recidivism. Models testing the effects of both AZYAS-Residential and Reentry tools were estimated.

Table 7. Multivariate Logistic Regression Models for Recidivism Measures and AZYAS-Residential

	Recidivism Type		
Variables	Revocation	Warrant Issued	Noncompliant
AZYAS-Residential	1.12*	1.16*	1.09*
Sex (1 = Male)	1.77	1.58	.47*
African American	.96	1.50	1.84
Hispanic	.57	.59	1.37
Biracial	.66	.97	1.56
Other Minority	.60	.83	3.16
Age at Release	.44*	.45*	.66*
Model χ^2	71.39*	84.19*	37.94*
Nagelkerke R^2	.22	.27	.13

Entries are odds ratios. * Statistically significant at the .05 level.

Table 7 displays three logistic models where each recidivism measure was regressed onto the AZYAS-Residential and six demographic variables. Importantly, the estimates for the AZYAS-Residential were significant in all three models. For revocation, the odds ratio indicated that a one unit increase in the risk tool increased the odds of parole revocation by 12%. A similar effect was observed for the other two recidivism outcomes; that is, a one unit increase in the AZYAS-Residential increased the odds that a warrant was issued by 16% and that youth were noncompliant with at least one condition of their parole by 9%. The only other consistent predictor across models was age at release, which indicate each year increase was associated with a reduction in the odds of recidivism.

Table 8. Multivariate Logistic Regression Models for Recidivism Measures and AZYAS-Reentry

	Recidivism Type		
Variables	Revocation	Warrant Issued	Noncompliant
AZYAS-Reentry	1.08*	1.11*	1.05*
Sex (1 = Male)	1.89	1.59	.52
African American	.90	1.09	1.58
Hispanic	.63	.54	1.37
Biracial	.80	1.34	1.93
Other Minority	.49	.63	2.68
Age at Release	.39*	.38*	.67*
Model χ^2	63.40*	73.12*	22.08*
Nagelkerke R^2	.23	.28	.09

Entries are odds ratios. * Statistically significant at the .05 level.

The estimates for the AZYAS-Reentry tool are presented in Table 8. The effects of the AZYAS-Reentry on the recidivism indicated that higher scores were associated with an increased odds of recidivism. For example, each unit increase in the AZYAS-Reentry corresponded to an 8% increase in the odds of revocation. The same increase in the risk tool also increased the odds of a warrant was issued by 11% and that youth violated at least one condition of their parole by 5%. Again, it should be noted that these estimates take into account the potential spurious effects of demographic factors. Logistic regression models featuring AZYAS-Residential risk groups are provided in Appendix E and Appendix F.

To summarize, the results from the multivariate logistic regression models clearly indicated that the scores from both the AZYAS-Residential and AZYAS-Reentry were associated with greater odds of parole revocation, a warrant being issued, and noncompliance with the conditions of parole. Of the three approaches to testing the effects of the risk tools, this multivariate approach was arguably the most rigorous because it took into account the potential effects of demographic factors. Nevertheless, the results from all three approaches were consistent in that they indicated both tools were positively related to all three recidivism measures.

Further Testing

A final set analyses focused on exploring the relationship between the AZYAS-Residential and the AZYAS-Reentry tools. Put differently, the correlation matrix in Table 9 provide estimates for (1) the associations between the overall risk scores for both tools, (2) the relationship between domains for both tools, and (3) the relationship between overall risk scores and domain scores. However, the focus here was on the first two types of associations. Both the five and seven domain overall risk scores were included for the AZYAS-Residential tool. Looking first to the relationship between the Residential and Reentry tools, the correlations were quite strong (r = .658 and .667). Because these two instrument do vary somewhat in content, focusing on the risk and needs of specific stages of the juvenile justice process, correlations of this size appeared reasonable. In short, while the overall risk scores from the AZYAS-Residential and AZYAS-Reentry were related to one another, the magnitude of the relationship suggested that the two tools were meaningfully different in the content of the information contained within.

Table 9. Correlations between AZYAS-Residential and AZYAS-Reentry Tools

Residential	Reentry	1.	2.	3.	4.	5.	6.	7.	8. AZYAS-Reentry
1.	Juvenile Justice History	.355*	.110*	.251*	.042	.050	.238*	.185*	.311*
2.	Family and Living Arrangements	.153*	.207*	.004	-.029	.075	.084	.082	.120*
3.	Peers and Social Support Network	.463*	.156*	.566*	.321*	.268*	.451*	.380*	.645*
4.	Education and Employment	.259*	.178*	.321*	.361*	.155*	.156*	.244*	.390*
5.	Pro-Social Skills	.393*	.121*	.315*	.156*	.210*	.237*	.250*	.417*
6.	Substance Abuse, Mental Health, and Personality	.248*	-.010	.402*	.173*	.154*	.519*	.182*	.426*
7.	Values, Beliefs, and Attitudes	.467*	.206*	.420*	.252*	.192*	.311*	.330*	.530*
8.	AZYAS-Residential (5 domains)	.529*	.155*	.559*	.273*	.249*	.512*	.371*	.658*
9.	AZYAS-Residential (7 domains)	.537*	.196*	.549*	.291*	.257*	.497*	.381*	.667*

* Statistically significant at the .05 level.

The second interest lied in the associations between the domains for each tool. The correlations between the same domain for each tool (i.e., Juvenile Justice History domains for the Residential and Reentry tools) are presented on the diagonal of Table 9. For example, the correlation between the Peers and Social Support Network domain for the AZYAS-Residential and the same domain in the Reentry tool was .566. This was the strongest correlation observed for the associations between the domains across tools. The weakest correlation was between the Family and Living Arrangements domain (r = .207). Because this domain in excluded from the AZYAS-Residential in practice, but retained in the AZYAS-Reentry, additional tests were conduct. Specifically, the two domains were disaggregated. In terms of content, this domain contains the same information for both tools—that is, both domains gauge the importance of family for youth. However, there are also differences. The AZYAS-Residential includes information about parental support and effective communication, the AZYAS-Reentry does not. The latter includes information about parental arrest, the use appropriate consequences, and the quality of existing relationships that the Residential tool does not (see Table 10). Perhaps the most interesting difference concerns whether a parent has been arrested. Indeed, this item was the only one in the domain to achieve statistical significance with at least two of the recidivism measures. It also appeared to account for much of the significance of the correlation between the domain and the recidivism measures. Simply put, when it comes to the salience of family and living arrangements among youth who were about to be released from Adobe Mountain School, whether one of their parents had been arrested was very consequential in terms of whether they would successfully complete parole.

Table 10. Correlations between Recidivism Measures and AZYAS Family and Living Arrangements Items (Residential and Reentry)

	Recidivism Type		
	Revocation	Warrant Issued	Noncompliant
AZYAS-Residential (Family and Living Arrangements)	.019	.104*	.081
1. Family is important (1 = Family is not very important to youth)	.027	.081	.006
2. Parental support (1 = Parents do not support youth)	.013	.119*	.116*
3. Effective communication with family (1= Parents do not listen to youth)	.008	.056	.075
AZYAS-Reentry (Family and Living Arrangements)	.132*	.162*	.111*
1. Family is important (1= Family is not very important to youth)	.064	.058	.002
2. Family member(s) arrested (1 = Yes)	.166*	.208*	.083
3. Parents use appropriate consequences (1 = Parents use inappropriate consequences)	.062	.113*	.094
4. Positive relationship with person at planned residence (1 = Does not have a positive relationship)	-.009	-.050	.033

* Statistically significant at the .05 level.

Discussion

This study provided an empirical assessment of the AZYAS-Residential and Reentry tools using a cohort of 394 youths transitioning from the ADJC secure care facility to community supervision. The investigation aimed to evaluate several important areas, including the alignment of AZYAS score distributions with recommended cut points, the rate of recidivism across the three risk levels, and the predictive validity of both tools and the individual domains. The assessment also included some "exploratory" investigations, such as the level of predictive validity across different phases of the COVID-19 pandemic and a closer look at the role of Family and Living Arrangements in terms of recidivism during community supervision. This section of the report begins with a concise summary of the key findings, followed by a discussion of the implications for practice and relevant recommendations.

Key Findings

The analyses in this study produced a number of useful findings. For starters, the distributions of the overall scores for both the AZYAS-Residential and Reentry tool were consistent with expectations. For example, a large portion of the residential sample were classified in the "moderate-to-high" range, which was to be expected from secure care youth. For the reentry sample, the distribution of AZYAS scores closely reflected expectations in terms of the sizes of the low-, moderate-, and high-risk groups (i.e., expected = 25%, 50%, 25% and actual = 22%, 61%, 17%). In short, the descriptive analyses largely validated the expectations surrounding the distribution of AZYAS scores.

In terms of predictive validity, recidivism rates across the three risk groups were generally consistent with expectations. Put simply, recidivism was the least frequent among the low risk group and most frequent for the high risk group, with the frequency of recidivism falling between the latter two groups for moderate-risk youth. The relationships between

three risk groups and recidivism measures were statistically significant. However, the assessments showed that the level of recidivism among “moderate-” and “high-risk” groups were not statistically different. In other words, neither AZYAS instrument was able to distinguish between moderate- and high-risk youth in terms of recidivism. In conclusion, both AZYAS instruments demonstrated predictive validity when assessing recidivism across risk groups. However, a noteworthy limitation involving moderate- and high-risk youth was observed.

The full range of AZYAS risk scores were also subjected to predictive validity tests, the results of which were encouraging. For example, statistically significant correlations were observed between AZYAS risk score and the recidivism outcomes (average r = .293 for residential and .231 for reentry). Importantly, both AZYAS tools (residential and reentry) also predicted recidivism under rigorous conditions. The logistic regression models showed that the odds of recidivism increased significantly as risk scores increased, while controlling for other demographic variables. When looking at the correlations across the three time periods included in the study—pre-COVID, COVID, and post-COVID—it was observed that the predictive power of the AZYAS instruments increased over time. The correlation for the AZYAS-Residential and revocation ranged from .091 (pre-COVID), to .330 (COVID), to .474 (post-COVID). A similar trend was observed for the Reentry tool. This trend suggested that the in-house quality assurances that were implemented are having the desired effect.

The correlation analyses revealed four important findings. First, the results from the AZYAS-Residential assessment showed that two of the seven domains—Family & Living Arrangements and Education & Employment—did not improve the tool’s predictive validity. This finding supports the current practice from omitting these domains from the calculation of AZYAS-Residential risk scores. Second, three domains of the seven domains—Juvenile Justice History, Peers and Social Support, and Substance Abuse, Mental Health, and

Personality—were the strongest correlates of recidivism for both the AZYAS-Residential and Reentry tools. Third, unlike the observations for the AZYAS-Residential tool, both "Family & Living Arrangements" and "Education & Employment" were significantly related to the AZYAS-Reentry. Accordingly, both domains should be retained when calculating reentry risk scores. Finally, the study also explored the role of "Family & Living Arrangements" more closely for both samples. Interestingly, one item in the reentry tool—"Family member arrested"—was the most important element.

Having outlined some of the study's key findings, attention now shifts to discussing the implications for practice and providing relevant recommendations.

Implications and Recommendations

The findings from the study are generally positive in terms of the effectiveness of the AZYAS-Residential and AZYAS-Reentry tools within the targeted population, supporting further consideration into expanding the use of the tools within both secure care and community supervision practices to better align with the Risk-Need-Responsivity (RNR) model (Andrews & Bonta, 2010). This expansion would likely be two-fold. First, within secure care, there is an opportunity to broaden the use of the AZYAS-Residential by integrating the information it provides into various decision-making processes. Second, in the community supervision context, there is an opportunity to extend the use of the AZYAS-Reentry to help guide intervention decisions, especially for youth with specific familial backgrounds. Implementing these recommendations would not only elevate the overall efficacy of practices, but also potentially contribute to improved outcomes for the youth involved in the system.

Secure Care

The results from this study indicated that the AZYAS-Residential was an effective and valid risk/needs instrument for youth at the Adobe Mountain School, suggesting its

appropriateness for informing various practices. While the AZYAS-Residential currently informs treatment plans overseen by psychological associates, there is potential for broader use to establish a more standardized and unified approach to rehabilitative services within the facility, in closer alignment with the RNR model.

First, caseworkers could employ the AZYAS-Residential to guide different aspects of overall case management. For instance, the tool could play a central role in identifying and tailoring intervention strategies and resources, ensuring that all identified risks and needs are addressed for each youth before their release into the community. Adobe Mountain School offers diverse programming opportunities, including therapeutic, recreational, educational, vocational, psychoeducational, and various structured activities. Using the AZYAS-Residential to inform decisions about participation or enrollment in these programs, practitioners can strategically place youth in programs aligning with their documented needs and risks. This approach maximizes the impact of the offered programming and has the potential to significantly reduce recidivism. Additionally, it would help align the work of caseworkers to compliment that of the mental health staff.

Additionally, the AZYAS-Residential could be used to better inform unit placement decisions to ensure that youth are placed in units offering a range of programming in line with their assessed needs and risks. This practice would not only optimize the therapeutic environment for individual youth but also prevent the placement of low-risk individuals with moderate or high-risk youths, promoting a safer and potentially more effective rehabilitative setting.

Lastly, the AZYAS-Residential could be expanded beyond the initial drafting of treatment goals to inform treatment dosage determinations. Consistent with best practices, individuals assessed as low risk would receive minimal services, while those assessed as high risk would receive more intensive interventions. This tailored approach ensures efficient

allocation of resources, targeting those who stand to benefit the most from intensive services while avoiding over-servicing those who do not need higher levels of intervention.

Given these potential applications, there is a clear need for training and capacity-building initiatives to empower staff in understanding and effectively using the AZYAS-Residential at various decision-making points within secure care. Strengthening staff proficiency in the tool's application will help ensure its effective integration into existing practices, ultimately enhancing the overall quality of care and rehabilitation within the facility. Overall, expanded use of the AZYAS-Residential not only aligns with evidence-based models, but also represents an opportunity to refine services to be more effective and efficient.

Community Supervision

The study supports further integration of the AZYAS-Reentry within community supervision processes, especially its use to guide intervention decisions and enhance outcomes for youth transitioning back to their communities. Aligning with established research supporting the RNR model for community supervision as a means to reduce recidivism (Bonta, 2023), the incorporation of AZYAS data could serve as a valuable resource within this framework.

While the AZYAS-Reentry is already instrumental in shaping overarching community supervision guidelines, there exists untapped potential for a more complete integration into the day-to-day interactions between parole officers and youth. To effectively accomplish this, it is crucial to first build and sustain officer capacity, ensuring their understanding and capacity to use the AZYAS information in alignment with the RNR model. Initial and ongoing training should concentrate on using AZYAS results to inform where and how to focus interventions. This involves incorporating AZYAS data into continuous case planning, allowing officers to identify specific risk factors and tailor interventions accordingly. For

instance, interventions and interactions could be tailored to address family dynamics, such as a history of parental arrest, which the study results show greatly influenced the likelihood of recidivism.

In general, the AZYAS-Reentry could be incorporated into individual meetings with the youth and their guardians to provide guidance into potential challenges and areas requiring targeted attention. Doing so would allow parole officers to adapt their strategies and approach based on the most recent assessment results, fostering a dynamic and responsive approach to community supervision. Similarly, information from the AZYAS-Reentry may also be shared with various community service providers, such as treatment facilities for mental health, substance abuse, or sexually abusive behaviors, to help guide their services to align with the ADJC's efforts at addressing criminogenic risks and needs.

The AZYAS-Reentry, serving as a foundation for this targeted approach, holds the potential to significantly contribute to the successful reintegration of these youth into the community. By identifying and addressing specific risk factors parole officers can optimize their strategies, thereby enhancing the likelihood of positive outcomes for the youth. In conclusion, the expansion of AZYAS use within community supervision aligns with evidence-based models and presents an opportunity to refine intervention strategies through targeted, data-informed approaches.

References

Andrews, D., & Bonta, J. (2010). Rehabilitating criminal justice policy and practice. *Psychology, Public Policy, and Law*, *16*(1), 39-55.

Bonta, J. (2023). Training community supervision officers in the risk-need-responsivity model of offender rehabilitation: A review and implications. *Journal of Offender Rehabilitation*, *62*(1), 39-58.

Campbell, C., D'Amato, C., & Papp, J. (2020). Validation of the Ohio Youth Assessment System dispositional tool (OYAS-DIS): An examination of race and gender differences. *Youth Violence and Juvenile Justice*, *18*(2), 196-211.

Campbell, C., Lowrance Clark, B., Papp, J., Kiki, E., Miller, W., Guiterrez, L., ... & Crusto, C. (2023). Crossover youth and juvenile justice: An examination of criminogenic risk and needs for offenders with child welfare history using the Ohio Youth Assessment System. *Journal of Offender Rehabilitation*, *62*(8), 483-500.

Hosmer Jr., D., Lemeshow, S., & Sturdivant, R. (2013). *Applied logistic regression* (3rd ed.). John Wiley & Sons.

Kaeble, D. (2023). *Probation and parole in the United States, 2021*. Bureau of Justice Statistics.

Latessa, E., Lovins, B., & Ostrowski, K. (2009). *The Ohio Youth Assessment System*. Center for Criminal Justice Research, University of Cincinnati.

Licht, M. (1995). Multiple regression and correlation. In L. Grimm & P. Yarnold (Eds.), *Reading and understanding multivariate statistics* (pp. 19–64). American Psychological Association.

Lovins, B., & Latessa, E. (2013). Creation and validation of the Ohio Youth Assessment System (OYAS) and strategies for successful implementation. *Justice Research & Policy, 15*(1), 67-93.

McCafferty, J., Newsome, J., & Sullivan, C. (2017). *Report: Study of AZYAS-Residential.* The Corrections Institute, University of Cincinnati.

Miller, L., & Whitehead, J. (1996). *Introduction to criminal justice research and statistics*. Anderson Publishing Company.

Papp, J., Campbell, C., & Miller, W. (2020). Validation and examination of the Ohio Youth Assessment System with juvenile sex offenders. *Criminology & Public Policy, 19*(2), 433-450.

Appendices

Appendix A. Descriptive Statistics for AZYAS-Residential Risk Measures (Full Sample)

Variables	n	% or Mean (SD)
I. JUVENILE JUSTICE HISTORY	394	2.83 (1.24)
Documented contact with juvenile justice system	394	63%
Previous adjudications	394	1.63 (.65)
Probation violations	394	57%
II. FAMILY AND LIVING ARRANGEMENTS	394	.47 (.88)
Family is important	393	16%
Parental support	393	13%
Effective communication with family	392	18%
III. PEERS AND SOCIAL SUPPORT NETWORK	394	3.74 (1.75)
Friends fight	393	45%
Arrested with friends	393	71%
Friends support drug use	391	84%
Friends/family associated with gang activity	393	66%
Friends arrested	393	75%
Fight with significant other	393	10%
Relationship with juvenile justice personnel	393	26%
IV. EDUCATION AND EMPLOYMENT	394	.97 (.78)
Expelled ever	392	62%
Relationship with current school personnel/employer	391	26%
Truant from school	391	9%
V. PRO-SOCIAL SKILLS	394	2.58 (1.25)
Can identify triggers/high risk situations	392	57%
Weighs pro/cons of a situation	391	68%
Pro-social decision making	392	86%
Frustration tolerance	389	49%
VI. SUBSTANCE ABUSE, MENTAL HEALTH, AND PERSONALITY	394	4.65 (1.78)
Age of drug onset	392	51%
Most recent use of alcohol/drug	393	88%
Others complained about drug/alcohol use	392	69%
Positive drug test within past 6 months	390	62%
Alcohol/drugs have caused problem in major life area	392	70%
Inflated self-esteem	391	41%
Major head trauma	391	10%
Risk taking behavior	391	77%
VII. VALUES, BELIEFS, AND ATTITUDES	394	2.79 (1.33)
Pro-criminal sentiments	391	74%
Negative attitude towards supervision	394	24%
Attitude supports substance use	394	76%
Demonstrates empathy towards others	394	48%
Attitude toward gangs	393	58%

Appendix B. Descriptive Statistics for AZYAS-Reentry Risk Measures (Full Sample)

Variables	n	% or Mean (SD)
I. JUVENILE JUSTICE HISTORY	341	3.48 (1.63)
Documented contact with juvenile justice system	341	69%
Attempted and/or escaped from residential facility	341	20%
History of selling drugs	341	52%
Physical altercation with an authority figure	341	35%
Weapon used during a crime	341	47%
Victim physically harmed during offense	341	51%
Received a major sanction while in residential care	341	74%
II. FAMILY AND LIVING ARRANGEMENTS	341	1.38 (.78)
Family is important	341	7%
Family member(s) arrested	341	84%
Parents use appropriate consequences	341	32%
Positive relationship with person at planned residence	341	15%
III. PEERS AND SOCIAL SUPPORT NETWORK	340	4.09 (1.92)
Acquaintances use drugs	340	58%
Friends fight	340	51%
Friends use drug	341	72%
Friends arrested	341	60%
Relationship with youth on unit	341	13%
Relationship with staff	341	6%
Friends/family associated with gang activity	341	59%
Arrested with friends	341	63%
Adults in the community are supportive	341	28%
IV. EDUCATION AND EMPLOYMENT	341	1.54 (.99)
Truant from school	341	13%
Expelled ever	341	48%
Effort in school	341	62%
Relationship with current school personnel/employer	341	30%
V. PRO-SOCIAL SKILLS	341	1.76 (1.27)
Can identify triggers/high risk situations	341	27%
Weighs pro/cons of a situation	341	35%
Pro-social decision making	341	58%
Frustration tolerance	341	56%
VI. SUBSTANCE ABUSE, MENTAL HEALTH, AND PERSONALITY	341	3.82 (1.35)
Age of drug onset	341	53%
Others complained about drug/alcohol use	341	84%
Positive drug test within past 6 months	341	26%
Alcohol/drugs have caused problem in major life area	341	74%
Used substances while in residential facility	341	4%
Inflated self-esteem	341	52%
Risk taking behavior	341	90%
VII. VALUES, BELIEFS, AND ATTITUDES	341	3.06 (1.27)
Pro-criminal sentiments	341	41%
Negative attitude towards supervision	341	11%
Attitude supports substance use	341	53%
Demonstrates remorse for offense	341	91%
Demonstrates empathy towards others	341	71%
Attitude toward gangs	341	39%

Appendix C. Correlations for AZYAS-Reentry and Revocation across Time Three Periods

Variables	Revocation		
	Pre-COVID (n = 101)	COVID (n = 160)	Post-COVID (n = 79)
Juvenile Justice History	.074	.251*	.390*
Family and Living Arrangements	.061	.198*	.070
Peers and Social Support Network	-.153	.337*	.319*
Education and Employment	.000	.130	.204
Pro-Social Skills	-.088	.082	.053
Substance Abuse, Mental Health, and Personality	.043	.231*	.255*
Values, Beliefs, and Attitudes	-.061	.145	.237*
AZYAS-Reentry	-.061	.322*	.376*

* Statistically significant at the .05 level.

Appendix D. Correlations between AZYAS Risk Scores and Additional Variables (Full Sample)

	AZYAS Risk Scores	
Variables	Residential	Reentry
Sex (1 = male)	.162*	.184*
African American	.118*	.178*
Hispanic	-.151*	-.125*
Biracial	.173*	.145*
Other Minority	.049	.033
Age at Release	-.091	-.115*
Primary Language English	-.312*	-.258*
Drug Offense	-.243*	-.221*
Crime against Person	-.022	.106
Length of Stay	.172*	.205*
Time on Parole	-.087	-.031
Prior Petitions	.454*	.305*
Child Welfare Involvement	-.088	-.009
Sexualized Behavior Treatment Program	-.332*	-.180*
Seven Challenges	.371*	.301*
In-person Visits	.089	.026
History of Running Away	.351*	.177*
Incarcerated Family Member/Caregiver	.160*	.021
Victim of Abuse	.009	-.030
Youth is a Parent (or soon to be)	-.232*	-.198*

* Statistically significant at the .05 level.

Appendix E. Multivariate Logistic Regression Models for Recidivism Measures and AZYAS-Residential Risk Groups (Full Sample)

	Recidivism Type		
Variables	Revocation	Warrant Issued	Noncompliant
AZYAS-Residential (Risk Groups)	1.85*	2.18*	1.86*
Sex (1 = Male)	1.76	1.61	.47*
African American	.99	1.55	1.78
Hispanic	.55	.56	1.28
Biracial	.72	1.09	1.56
Other Minority	.65	.92	3.21
Age at Release	.45*	.46*	.66*
Model χ^2	62.06*	68.15*	37.72*
Nagelkerke R^2	.20	.22	.13

Entries are odds ratios. * Statistically significant at the .05 level.

Appendix F. Multivariate Logistic Regression Models for Recidivism Measures and AZYAS-Reentry Risk Categories (Full Sample)

	Recidivism Type		
Variables	Revocation	Warrant Issued	Noncompliant
AZYAS-Reentry (Risk Groups)	1.65*	2.64*	1.45*
Sex (1 = Male)	2.01	1.68	.54*
African American	.99	1.13	1.61
Hispanic	.63	.51	1.35
Biracial	.88	1.38	1.99
Other Minority	.55	.72	2.79
Age at Release	.39*	.39*	.68*
Model χ^2	57.38*	71.04*	21.05*
Nagelkerke R^2	.21	.27	.08

Entries are odds ratios. * Statistically significant at the .05 level.