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## Screening Offenders: The Exploration of a Youth Level of Service/Case Management Inventory:

### (YLS/CMI) Brief Screener

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### Abstract

Although structured assessments have helped standardize juvenile court processes by systematically measuring risk for recidivism, it has been argued that some assessments lack the ability to perform as a brief screener. This study explored the potential for the original 42-item Youth Level of Service/Case Management Inventory (YLS/CMI) risk assessment to perform as a brief screener for a sample of first-time juvenile offenders in a mid-western, industrialized county. Results indicated that the original and shortened version of the YLS/CMI significantly predicted two-year recidivism for male and female offenders. Implications for situationally targeted forms of risk assessment are discussed.

### Keywords

risk assessment; short form; intake; screener; Youth Level of Service/Case Management Inventory

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Over the past decade overall juvenile delinquency has declined. This overall decline runs counter to the increase in simple assaults and weapon offenses perpetrated by juveniles (Puzzanchera & Adams, 2011). Although there is a general decline in juvenile delinquency rates, the number of cases processed by courts has steadily increased (Puzzanchera, Adams, & Sickmund, 2011). This mismatch between the declines in juvenile offending and the number of new cases, may suggest the over-processing and unnecessary attention given to potentially low-risk offenders (Schwalbe, Fraser, Day & Cooley, 2006).

Given that a small percentage of juvenile offenders are responsible for repeat offending (Cottle, Lee, & Heilbrun, 2001), identifying youth (especially during the intake process) most likely to have future contact with the courts can help reserve resources for those youth who have the greatest intervention needs (Andrews & Bonta, 2006; Cullen, Andrew, & Edward, 2009; Onifade et al., 2008; Vincent, et al., 2012). The long-term costs of juvenile offending have placed a premium on efficiently assessing and treating juvenile offenders. A cost-benefit analysis of the juvenile justice system suggested that providing the appropriate

interventions for career offenders could save up to 2.3 million dollars long-term, per offender (Cohen, 2008). More crucial, failure to provide youth with appropriate interventions amplifies the juvenile delinquency problem (Cohen, 2008; Cullen et al., 2009). Consequently, actuarial risk assessments have been used to standardize court dispositions and intervention practices by focusing on factors that impact risk for recidivism (Hoge, 2002).

The adoption of risk assessment practices has resulted in increased use of these tools from 33% in 1990 to 86% in 2003 in juvenile justice systems across North America (Schwalbe, Fraser, & Day, 2007). These measures provide decision-makers (e.g. court referees, judges, and juvenile court officers) with information that can assist with initiating services and case management (Vieira, Skilling, & Peterson-Badali, 2009) by focusing on criminogenic risk factors such as lack of leisure activities, delinquent peers, and behavior problems in school (Hoge, 2002). Employing these instruments increases consistency in the processing of juveniles, and helps ensure that youth with similar risk levels receive comparable dispositions (i.e., court dismissals, programming, and interventions) (Schwalbe, 2008).

Prior to the implementation of risk assessment instruments, decision makers relied on unstructured professional judgments (Hoge, 2002; Upperton, 2007) to determine youth at risk for recidivism. This practice raised many concerns given the level of subjectivity and potential bias across select groups (i.e. gender, race, and socioeconomic status) (Onifade, Davidson, & Campbell, 2009; Schwalbe et al., 2006). More generally, the evaluation of the efficacy of clinical versus actuarial prediction has a long tradition within the broader domain of psychometrics. These evaluations suggested that actuarial predictions produce more valid predictions than “hunches” (Grove & Meehl, 1996; Shaffer, Kelly, & Lieberman, 2011). Given these findings, the use of actuarial risk assessments has been critical in increasing the accuracy of risk for recidivism predictions in juvenile justice settings (Schwalbe, Fraser, & Day, 2007).

One juvenile justice setting that deserves attention is informal probation, also known as the intake division. Most intake divisions are uniquely responsible for screening offenders and determining which cases are formally processed (Schwalbe, Day & Arnold, 2004). At this stage of the court process, risk assessments provide intake court officials the ability to quickly and efficiently assess risk for recidivism where low-risk offenders can be referred to community-based programming.

While risk actuarial assessments demonstrate promise, resistance to their use has been linked to their length (Chuthapisith, 2012). As a result, it is believed that risk assessment screeners have the potential to save resources by replacing time-consuming and extraneous assessments (Raes, Pommier, Neff, & Van Gucht, 2011), and minimizing the number of low-risk cases handled by formal probation (Bechtel et al., 2007; Onifade et al., 2008; Schwalbe, et al., 2004). The breadth and scope of these measures are built on theoretical conceptualizations (i.e. our understanding of behaviors and social environments) and practical experiences (e.g. the need to save costs and observed recidivism trends) that impact the adjudication process.

The most widely-implemented and investigated, (Andrews, et al., 2011; Schwalbe et al., 2007) theoretically-derived measure for juvenile offenders is the Youth Level of Service/ Case Management Inventory (YLS/CMI) (Hoge & Andrews, 2002; Hoge, Andrews, & Lescheid, 2002). The original YLS/CMI was developed and normed on Canadian juvenile probationers ages 12–17 (Hoge, 2002). Most recently, this measure has been updated to a 2.0 version (Hoge & Andrews, 2011), which has been normed on male and female juveniles from the United States and Canada. The theoretical basis for the development of this assessment tool was the Risk-Needs-Responsivity (RNR) model (Andrews, Bonta, & Hoge, 1990). The RNR model contains three core principles. The *Risk principle* involves assessing juvenile's level of risk and matching it to the appropriate level of service. The *Needs principle* requires the assessment of the juvenile's criminogenic needs, and targeting those needs during case planning. Finally, the *Responsivity principle* takes into account juvenile's personality and learning styles while incorporating cognitive behavioral techniques to maximize the positive impact of treatment (Andrews & Dowden, 2007; Bonta & Andrews, 2007; Dowden & Andrews, 2004). It has been suggested that the RNR model is crucial for case management, effective in identifying risk for recidivism, and should be integrated throughout the court process as a means to improve and tailor the specific intervention needs that address risk for future delinquency (Andrews & Dowden, 2006). The adoption of this model potentially reduces criminogenic outcomes for up to 30% of some juvenile justice populations (Andrews & Dowden, 2006). The fact that the YLS/CMI is grounded in this model may also be linked to its predictive validity and reliability (Onifade et al., 2009).

Findings from a recent meta-analysis demonstrated that the YLS/CMI was the most commonly reported juvenile risk assessment (11 out of 28 studies examined) and had Area Under the Curve (AUC) statistics ranging from .57–.75 (Schwalbe et al., 2007). The YLS/CMI has been shown to accurately predict various recidivism outcomes such as rearrest, reincarceration (Flores, Travis, & Latessa, 2003), reconviction (Olver, Stockdale, & Wong, 2012), and treatment success (Vieira et al., 2009). In addition, the YLS/CMI maintained predictive accuracy for both minor and serious re-offenses with AUCs of .67 and .61, respectively (Schmidt, Hoge, & Gomes, 2005). Other studies illustrated the measure significantly predicted general, violent, and non-violent recidivism (Olver, Stockdale, & Wormith, 2009) and its predictive validity has been illustrated elsewhere (Catchpole & Gretton, 2003; Jung & Rawana, 1999; Onifade et al. 2009; Onifade et al., 2008; Welsh et al., 2008).

While the YLS/CMI has demonstrated predictive validity relative to recidivism, there are mixed findings regarding the ability for this tool to provide accurate predictions across gender. This may due to females representing about 25% of juvenile offenders and that many risk assessments are developed with samples with little to no female offenders (Puzzanchera & Adams, 2011). This is problematic as the large number of boys could overpower, or mask, the experience of girls, leading to unequal predictions across gender (Olver et al., 2009; Schwalbe, 2008; Vitopolous, Peterson-Badali, & Skilling, 2012). While the YLS/CMI version 2.0 addresses some of these concerns by integrating more gender-responsive items and some studies have found the YLS/CMI 1.0 to be robust to gender differences (Olver et al., 2009; Schwalbe, 2008; Vitopolous et al., 2012), other research

argues that gaining a better understanding of gender differences is necessary (Schmidt, Campbell & Houlding, 2011).

Given the nature of the YLS/CMI and evidence of its predictive ability (Catchpole & Gretton, 2003; Jung & Rawana, 1999; Onifade et al. 2009; Onifade et al., 2008; Welsh et al., 2008), it has great potential to serve as brief screener. In 2008, Hoge and Andrews began piloting the Youth Level of Service/Case Management Screener Version (YLS - SV), which provides a quick glimpse of static (e.g. criminal history) and dynamic (e.g. leisure and recreation) criminogenic risk factors to help estimate risk for recidivism (Hoge & Andrews, unpublished). To develop the YLS/CMI-SV, Hoge & Andrews (unpublished) employed a strategy whereby items identified in theoretical and empirical literature that were highly correlated to antisocial behavior were selected (Hoge & Andrews, unpublished). This strategy resulted in a screening version with eight items, one item representative of each of the eight domains (e.g. Prior Offenses and Dispositions, Family Circumstances and Parenting, Education and Employment, Peer Relationships, Substance Abuse, Leisure and Recreation, Personality and Behavior, and Attitudes and Orientation) on the original YLS/CMI. The current study method is a departure from the original strategy because it focuses on the selection of items based empirical methods and not the inclusion of the eight YLS/CMI domains. We viewed this as an alternative approach given the court's interests in a brief screener that solely focused on predicting risk for recidivism for juveniles in an Intake/Informal Probation Division. While the original form is not terribly long ( $n = 42$  items) and the YLS/CMI-SV does a good job at capturing the multiple dimensions of risk for recidivism, exploring the validity of an alternative shorter version holds the promise of increasing its appeal in juvenile justice intake divisions and expanding its productivity across first time male and female juvenile offenders.

The purpose of this study was three-fold. First, we examined the feasibility of empirically deriving a shorter risk assessment instrument using the original YLS/CMI. Second, we examined the reliability and predictive validity of the newly derived shorter screener on an independent, cross-validated sample. Third, we investigated the predictive validity of the original and derived brief screener across gender.

## Methods

### Setting

This study took place in a Juvenile Court in a medium-sized, Midwestern county. The state in which the Court exists serves youth 8 to 17 years of age, and defines a juvenile delinquent as a youth who violated the criminal or juvenile code, and has not yet reached their 18<sup>th</sup> birthday.

### Participants

The study sample was drawn from juvenile offenders who were petitioned to the juvenile court Intake/Informal Probation Division. These juveniles were mostly first-time offenders who participated in a delinquent act that did not lead to an immediate arrest. Juvenile Court Officers (JCOs) within this court division are responsible for determining whether a juvenile

should be referred to the Delinquency/Formal Probation Division, where cases are handled by a judge. JCOs are primarily responsible for case planning/management of juvenile offenders that are petitioned to the Court and early diversion. Overall delinquency committed by juveniles in this sample included retail fraud (e.g. shoplifting; 36%), assault (e.g. domestic disputes; 18%), larceny (e.g. car theft and breaking and entering; 14%), drugs (e.g. possession of marijuana; 13%), and other offenses (e.g. disorderly conduct; 19%).

**Scale construction sample**—The first sample of juveniles who participated in this study came in contact with the Intake/Informal Probation Division from 2004 to 2006. The sample ( $N = 558$ ) included both males ( $n = 365$ ; 65%) and females ( $n = 193$ ; 35%). Participants ranged in age from 9–17 with a mean age of 14.24 ( $SD = 1.71$ ). Less than 6% of the sample was under the age of 12. Ethnicity of participants was as follows: Caucasian (43%); African American/Black (46%); Latino/Mexican American (10%); other (1%). This sample received the original 42-item YLS/CMI risk assessment and was used to empirically construct the brief screener.

**Cross-validated sample**—The second sample of juveniles was used as an independent sample to cross-validate the YLS/CMI brief screener. This sample of juveniles included new cases that entered the Court from 2007 to 2009. This sample of juveniles only received the brief screener. The brief screener was developed by choosing the items that best predicted two-year recidivism in the scale construction sample. The cross-validated sample ( $N = 217$ ) included males ( $n = 119$ ; 55%) and females ( $n = 97$ ; 45%). The age range was from 8–17 years ( $M = 14.6$ ,  $SD = 1.7$ ). Less than 5% of the sample was under the age of 12. Ethnicity of participants was as follows: Caucasian (48%); African American/Black (8%); Latino/Mexican American (30%); other (14%).

Chi-square analyses were conducted to examine gender and ethnicity differences across the original and cross-validated samples. The percentage of males and females across both samples were significantly different  $\chi^2(1, N = 774) = 155.90, p < .05$ , *Cramer's V* = .10. The cross-validated sample had significantly more female offenders than the scale construction sample. There were also significant differences across ethnicity  $\chi^2(1, N = 774) = 7.08, p < .05$ , *Cramer's V* = .45, with significantly less African Americans and more Latinos in the cross-validated sample. An independent sample t-test was conducted to examine age differences across the original and cross-validated samples. Results suggested that juveniles in the cross-validated sample were significantly older than juveniles in the construction sample  $t(773) = .046, p < .05$ , *Cramer's V* = .15. It is important to note that although the YLS/CMI was designed for juveniles 12 to 18 years of age, JCOs administered the YLS/CMI to all juveniles who came in contact with the court, regardless of age. This was necessary given the court's desire to validate an instrument that was consistent with the reality of its daily operations and population (i.e. 6% under the age of 12).

**Measure: YLS/CMI**—Data was collected using the original YLS/CMI (Hoge, 2002). This 42-item assessment is based on 8 criminogenic risk areas, which include Prior Offenses and Dispositions, Family Circumstances and Parenting, Education and Employment, Peer Relationships, Substance Abuse, Leisure and Recreation, Personality and Behavior, and Attitudes and Orientation (Hoge, 2002). Each item is scored dichotomously (0 or 1)

producing a total score that ranges from 0 to 42. These total scores determine if the juvenile is low (0–8), moderate (9–22), high (22–34), or very high (35–42) risk for recidivism. The interpretation of the total score remains unchanged across both the original YLS/CMI used and the most updated YLS/CMI 2.0 version that is now available. The original 42-item YLS/CMI form was only administered to the initial scale construction sample.

**Recidivism**—Recidivism was a yes/no dichotomized measure defined as any new petition for a delinquent or adult offense occurring within two years following initial contact with the court. A petition is a legal document produced by police that lists the charges associated with a given criminal or delinquent act. Use of petitions is a less conservative means of measuring recidivism, as youth that are petitioned to court may not be formally charged. Put simply, a petition indicates official contact with the justice system. Recidivism data was collected from the court management information system. Juvenile and adult records were searched in order to account for individuals who reached their 18<sup>th</sup> birthday during the follow-up period and may have recidivated as an adult.

## Procedures

Prior to data collection, JCOs ( $n = 12$ ) received 16 hours of YLS/CMI protocol training from the researcher. To complete the YLS/CMI long form and screener, JCOs used available school records, police reports, court records, and a semi-structured interview. The semi-structured interview was conducted with both the juvenile and his/her guardian on initial contact with the court.

To develop the brief screener, items from the 42-item YLS/CMI that significantly predicted 2-year recidivism for our original sample were selected for inclusion. Ten items from the original YLS/CMI met the criteria for inclusion on the brief screener. The original 42-item YLS/CMI interview protocol was modified to represent the 10 items that remained on the screener. This resulted in a protocol that included less than half of the questions from the original interview protocol. The brief screener was then administered to the cross-validation sample to examine its predictive validity and to measure whether the screener protocol saved time.

Similar to the scoring for the original YLS/CMI, each item was scored dichotomously (0 or 1) producing a total score that ranges from 0 to 10. Risk group cut offs for the brief screener were based on 2-year recidivism rates of low, moderate, high, and very high risk offenders in the scale construction sample. Consequently, juveniles were either classified as low (0–2), moderate (3–4), or high risk (5–10). There is no very high-risk group classification for the developed screener.

To accommodate work flow and work load demands at the juvenile court as well as this researcher's need to validate its methods, a random 10% of original YLS/CMI and brief screener interviews were audio recorded and timed by research staff. Research staff also conducted informal observations, and asked JCOs about the assessment administration process and their experiences using the brief screener tool. These observations revealed that the original YLS/CMI interview lasted about 45 minutes to an hour. The YLS/CMI screener interviews ranged from 12–15 minutes, as each question took approximately one and a half

minutes to answer. This information allowed researchers to estimate how much time was saved upon the implementation of the screener form. To check level of agreement for YLS/CMI cases as it related to the overall risk score, JCOs were required to review and independently score the 10% of cases that were audio recorded. JCOs reached 90% agreement for both the original YLS/CMI and brief screener.

## Results

Predictive validity was the primary focus of this study. The Area Under the Curve (AUC) statistic was used to examine the predictive validity of the YLS/CMI original form and YLS/CMI brief screener. This statistic was selected because it is robust to selection ratios and the base rate of the occurrence of the dependent variable, recidivism (Rice & Harris, 1995; 2005; Swets, Dawes, & Monahan, 2000). *AUC* equals the probability that a randomly selected recidivist would score higher than a randomly selected non-recidivist and is derived by examining the ratio of true positives to false positives (Rice, 2005). In other words, it tests the number of times a given youth is predicted to reoffend, who truly reoffends, as a function of the number of times an offender is predicted to reoffend, but does not (Rice, 1995). *AUC* values of 1.0 represent perfect prediction, whereas values around .50 demonstrate that a risk assessment measure does not predict recidivism better than an unstructured guess/chance. Rice & Harris (2005) described *AUC* values of .556 as small, .639 as moderate, and .714 as large predictive validity effect sizes. Risk assessments' predictive validity is commonly assessed by the magnitude of the *AUC* statistic based on the composite risk score (Schwalbe et al., 2007).

Individual items that yielded significant ( $p < .05$ ) *AUC* statistics were used to develop the brief screener, regardless of the item's conceptual content. The magnitude of the *AUC* was not considered. Given this criteria, 10 items of the 42-item YLS/CMI original form reached significance: Disruptive Behavior in the Classroom; Disruptive Behavior on the School Grounds; Low Achievement in School; Problems with Peers in School; Problems with Teachers in School; Some Delinquent Friends; Limited Organized Activity; Could Make Better Use of Time; Physically Aggressive; and Short Attention Span. The ten items represented four of the eight criminogenic subscales of the original YLS/CMI: Education and Employment, Peer Relationships, Leisure and Recreation, and Personality and Behavior. The *AUC* statistics for all 42 items are presented in Table 1. The reliability coefficient for the YLS/CMI screener was  $\alpha = .87$ .

As shown in Table 2, the *AUC* for the composite score of the original form was statistically significant,  $p < .05$ . Proportions of recidivists were 24% for low ( $n = 287$ ), 34% for moderate ( $n = 151$ ), and 47% for high ( $n = 119$ ) risk groups (missing case = 1). Based on the 10 items used to create the brief screener, an additional *AUC* was examined with the scale construction sample. This *AUC* reached statistical significance ( $p < .05$ ). Finally, an *AUC* statistic was computed for the brief screener composite risk score with the cross-validated sample. This *AUC* was also significant ( $p < .05$ ). Recidivism rates for the cross-validated sample were 16% for low ( $n = 84$ ), 35% for moderate ( $n = 81$ ), and 43% ( $n = 44$ ) for high-risk groups (missing cases = 8).

*AUC* statistics were used to examine the validity of the original YLS/CMI and brief screener by gender. As shown on Table 3, the *AUC* for the original YLS/CMI form was significant for both males and females. *AUC* scores for the scale construction sample using the 10 items on the brief screener were also computed across gender; results suggested that males and females had significant *AUC* scores. The *AUC* for males and females also reached significance for the brief form administered to the cross-validated sample (see Table 3).

Follow-up analyses were necessary to compare differences in *AUC* statistics reported in the study. These follow-up analyses were performed using MedCalc for Windows, version 9.5.0.0 (MedCalc Software, Mariakerke, Belgium). This calculator compared the overall *AUC* statistics for the original YLS/CMI form and brief screener. Results suggested that the brief screener predicts two-year recidivism at a significantly higher rate than the long form ( $p < .05$ ). This same calculator was also used to examine *AUC* differences across male and female offenders. Results revealed that the *AUC* statistics for male and female offenders were not significantly different ( $p < .05$ ).

## Discussion

Screening offenders serves as a strategy for systematically diverting low-risk youth to informal probation (or out of the system entirely) and for referring high-risk youth to formal probation (Schwalbe et al., 2004). This study examined the potential for the YLS/CMI to perform as a brief screener for an Intake/Informal Probation Division. Results revealed that the original YLS/CMI can perform as a valid brief screener among a sample of first-time offenders.

Currently, the developers of the YLS/CMI has a short form, known as the Youth Level of Service-Screener Version (YLS-SV) (Hoge and Andrews, unpublished), which was theoretically derived and based on the eight criminogenic risk domains captured on the original YLS/CMI. Unlike the YLS-SV, our findings suggested that four of the eight domains (e.g. Education and Employment, Peer Relationships, Leisure and Recreation, and Personality and Behavior) were relevant for estimating risk for recidivism in our sample. Our alternative measure reduced the original YLS/CMI from 42-items to 10 items using strictly empirical approaches. Although our screener misses out on important information relative to treatment and intervention needs, the four domains that remained were dynamic in nature and represented critical factors identified by previous research as essential to estimating risk (Andrews & Dowden, 2007; Vitopolous et al., Skilling, 2012).

In our study, the predictability of the short and long form was valid for determining two-year recidivism for juveniles at intake/informal probation. The *AUCs* of the composite risk scores was used as the strategy for determining validity. It is important to note that while the 42 *AUCs* for the original YLS/CMI items were small in magnitude, the *AUCs* for each composite score performed at a moderate/acceptable rate. These findings were consistent with previous literature (Olver et al., 2012; Schwalbe et al., 2007).

Furthermore, we piloted the 10-item brief screener across an independent cross-validation sample of juveniles. Although the chi-square and t-test revealed that the cross validation



sample had more females, less African Americans, and were slightly older than the scale construction sample, the brief screener maintained its predictive validity. Given that the composite risk score *AUCs* for the brief screener compared to the original YLS/CMI performed significantly better, the screener is promising in estimating risk for recidivism among low risk, first time-offenders at intake, even with the demographic differences.

Lastly, we examined the validity of the original YLS/CMI and screener across gender. This study demonstrated that the YLS/CMI original form and the empirically derived screener were valid for both female and male juvenile offenders. Although female samples are difficult to access because they often represent a smaller proportion of juvenile offenders (Puzzanchera & Adams, 2011), this research was successful in developing a screener based on a sample of male and female offenders. Former research has found that the YLS/CMI was not effective in predicting recidivism for non-violent girls (Schmidt et al., 2011). However, the current study demonstrated that the YLS/CMI was “gender-neutral” in the estimation of risk for recidivism between non-violent male and female offenders. Specifically, because separate female analyses were conducted, *AUC* statistics were compared across gender and revealed that the YLS/CMI screener did not predict recidivism statistically different across the subgroups. These findings are consistent with previous meta-analyses (Loeber & Dishion, 1983; Simourd & Andrews, 1994), which also found no significant prediction differences for male and female offenders.

In addition to estimating risk for recidivism, the development of the alternative screener helped the court in question reduce time spent processing offenders. Using this form reduced the administration time by more than half, increasing the ability for the court to make recommendations and quickly identify one-third of the juveniles at Intake/Informal Probation Division that have less than a 26% chance of recidivating, in turn, reducing the caseload. Consequently, the implementation of the proposed screener was widely accepted by court staff. Implications of this research may serve to help reduce long-term costs for programming and services used for informal probationers and help intake officers gain more insight on important factors that best predict future crime for low risk or first-time offenders.

## Limitations

The research presented here is promising but there are a few limitations. First, the alternative short version does not cover all eight domains proposed to impact risk for recidivism. While these factors are important to consider, they highlight the need for additional research to help inform actuarial practice and appropriate adjudication of juvenile cases referred to the courts. Furthermore, both YLS/CMI assessments were administered to all juveniles 8 to 17 years of age. Given that less than 6% of our juvenile population at any given time was under the age of 12, we were unable to make meaningful conclusions regarding the validity of the YLS/CMI form for younger juveniles. We were also unable to look at distinct differences as it relates to crime type by recidivism. Although individual items did not have particularly high *AUC* statistics independently, the composite score, which is the most commonly used in the estimation of risk for recidivism, was valid for both male and females. Lastly, in this study we cross-validated our measure on a second sample. Our second sample varied on gender, ethnicity, and age. Although the 10-item screener was valid for our second sample,

future research is necessary to further examine the validity of this measure on additional samples that match on these demographic features.

### Future Research

While the value of this research is clear, additional research is needed to address limitations in the present study. Future research may examine the impact of the remaining four-domains/ten items to estimate risk for recidivism on a unique and larger sample of juvenile offenders to investigate a potential increase in predictability for the developed screener. Future studies should also examine the extent to which age, race, and other demographic features vary in predictive validity using the brief screener. This is especially necessary given our sample included all juveniles who came in contact with the court regardless of age. Lastly, more research is needed to explore the relationship between the factors that remained on the brief screener and their implications for interventions. This would expand effective models of recidivism and their linkages to the service/treatment needs of juvenile offenders.

It may be also valuable to closely examine juveniles with moderate to high-risk scores on the brief screener to better understand prevention models for first-time offenders. This study demonstrated that it is possible to derive an empirically developed screener based on a theoretically grounded measure without jeopardizing predictive validity. While the original YLS/CMI screener is theoretically beneficial in understanding the multilevel nature and theory of criminogenic risk/profiles, the empirically derived screener advances the understanding of risk assessment in predicting future crime by focusing on dynamic risk factors. Long-term implications of this work will provide courts with standardized strategies for shifting resources, services, and attention to juveniles who exhibit the highest intervention needs.

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**Table 1**

AUC Statistics for YLS/CMI Items for the Scale Construction Sample

| YLS/SMI Items                             | Area Under the Curve (AUC) | Standard Error | p value | Confidence Interval |
|---|----------------------------|----------------|---------|---------------------|
| 1. Prior Convictions                      | .490                       | .026           | .69     | .44-.54             |
| 2. Failure to Comply                      | .513                       | .026           | .61     | .46-.57             |
| 3. Prior Probation                        | .501                       | .026           | .97     | .45-.55             |
| 4. Prior Custody                          | .501                       | .026           | .96     | .45-.55             |
| 5. Number of Current Convictions          | .500                       | .026           | 1.00    | .45-.55             |
| 6. Inadequate Supervision                 | .504                       | .026           | .87     | .45-.56             |
| 7. Difficulty Controlling Behavior        | .525                       | .027           | .34     | .47-.58             |
| 8. Inappropriate Parental Discipline      | .516                       | .026           | .54     | .46-.57             |
| 9. Inconsistent Parenting                 | .537                       | .027           | .16     | .49-.59             |
| 10. Poor Relationship with Father         | .550                       | .026           | .06     | .50-.60             |
| 11. Poor Relationship with Mother         | .519                       | .026           | .48     | .47-.57             |
| 12. Disruptive Behavior in the Classroom  | .588                       | .026           | .00*    | .54-.63             |
| 13. Disruptive Behavior on School Grounds | .551                       | .026           | .05*    | .50-.60             |
| 14. Low Achievement in School             | .558                       | .026           | .03*    | .51-.61             |
| 15. Problems with Peers in School         | .551                       | .027           | .05*    | .50-.60             |
| 16. Problems with Teachers in School      | .563                       | .027           | .02*    | .51-.62             |
| 17. Truancy                               | .524                       | .026           | .35     | .47-.58             |
| 18. Unemployment/Not looking for Work     | _____                      | _____          | _____   | _____               |
| 19. Some Delinquent Acquaintances         | .550                       | .026           | .06     | .50-.60             |
| 20. Some Delinquent Friends               | .567                       | .027           | .01*    | .52-.62             |
| 21. Some Positive Acquaintances           | .535                       | .027           | .18     | .48-.59             |
| 22. Some Positive Friends                 | .527                       | .027           | .31     | .48-.58             |
| 23. Occasional Drug Use                   | .528                       | .026           | .28     | .48-.58             |
| 24. Chronic Drug Use                      | .515                       | .026           | .56     | .46-.57             |
| 25. Chronic Alcohol Use                   | .503                       | .026           | .89     | .45-.56             |
| 26. Substance Abuse Interferes            | .509                       | .026           | .75     | .46-.56             |
| 27. Substance Abuse Linked to Offense     | .506                       | .026           | .83     | .45-.56             |
| 28. Limited Organized Activity            | .553                       | .026           | .05*    | .50-.60             |
| 29. Could Make Better Use of Free Times   | .579                       | .026           | .00*    | .53-.63             |
| 30. No Personal Interests                 | .537                       | .027           | .16     | .49-.59             |
| 31. Inflated Self-Esteem                  | .516                       | .027           | .55     | .46-.57             |
| 32. Physically Aggressive                 | .556                       | .027           | .03*    | .50-.61             |
| 33. Tantrums                              | .520                       | .026           | .45     | .47-.57             |
| 34. Short Attention Span                  | .553                       | .026           | .04*    | .50-.61             |
| 35. Poor Frustration Tolerance            | .544                       | .026           | .09     | .49-.60             |
| 36. Inadequate Guilt Feelings             | .523                       | .027           | .39     | .47-.58             |
| 37. Verbally Aggressive                   | .532                       | .027           | .23     | .48-.58             |

| YLS/SMI Items                          | Area Under the Curve (AUC) | Standard Error | <i>p</i> value | Confidence Interval |
|--|----------------------------|----------------|----------------|---------------------|
| 38. Pro-criminal Attitudes             | .517                       | .026           | .52            | .47-.57             |
| 39. Not Seeking Help                   | .499                       | .026           | .98            | .45-.55             |
| 40. Rejecting Help                     | .498                       | .026           | .93            | .45-.55             |
| 41. Defies Authority                   | .530                       | .027           | .26            | .48-.58             |
| 42. Callous/ Little Concern for Others | .505                       | .026           | .83            | .45-.58             |

Note.

(\*) Identify significant test items ( $p < .05$ ).

(-) The variable Unemployment/Not looking for Work was omitted from measure. This item was not relevant to due to age and relevance to sample and had 0 variation.

**Table 2**

Predictive Validity of the YLS/CMI Long Form and Brief Screener Total Scores

| Sample             |                      | Area Under the Curve | Standard Error | Confidence Interval |
|--------------------|----------------------|----------------------|----------------|---------------------|
| Scale Construction | Long form Items      | .63*                 | .03            | .58 – .68           |
| Scale Construction | Brief Screener Items | .64*                 | .03            | .59 – .69           |
| Cross-validation   | Brief Screener Items | .67*                 | .04            | .59 – .75           |

\*  
 $p < .05$

**Table 3**  
 Predictive Validity of the YLS/CMI Original Form and Brief Screener by Gender

| Forms                  | Sample             | Area Under the Curve | Standard Error | Confidence Interval |
|------------------------|--------------------|----------------------|----------------|---------------------|
| 42-Item Form           | Scale Construction | .60*                 | .04            | .54 – .66           |
|                        | Female             | .70*                 | .03            | .62 – .78           |
| 10-Item Brief Screener | Scale Construction | .62*                 | .03            | .56 – .68           |
|                        | Female             | .68*                 | .05            | .59 – .76           |
| 10-Item Brief Screener | Cross-validation   | .68*                 | .05            | .58 – .79           |
|                        | Female             | .65*                 | .06            | .53 – .77           |

\*  $p < .05$