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Domains of the YLS: Do Some Matter More than Others?

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ABSTRACT

Data were obtained in Pennsylvania to examine referrals to juvenile courts in the Commonwealth for the 2021-2022 school year that include any felony, misdemeanor or summary offenses that occurred on school property. This study looked at the referrals to see if any of the individual domains of the Youth Level of Service Case Management Inventory 2.0 (YLS/CMI) had more of an effect on how the case was disposed of, which was defined as dismissed or handled informally, or formally adjudicated, in juvenile court. The research found that while the overall YLS risk score influenced juvenile court outcomes, only five of the eight individual domains of the YLS had a significant effect on how a case was processed in juvenile court, which calls into question how closely juvenile probation officers are following the instrument in their practice.

KEYWORDS: Delinquency, treatment, prediction, regression analysis

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DOMAINS OF THE YLS AND JUVENILE COURT DISPOSITION

In the juvenile court in Pennsylvania assessment of juvenile offender's risk to the community traditionally was conducted using a clinical assessment. A juvenile probation officer would interview an alleged juvenile delinquent and their family members, and then review relevant documents (like school records), before determining the appropriate disposition. If the disposition was out of home placement, a psychological, or less frequently, a psychiatric, evaluation was conducted. However, this was after the clinical assessment by the probation officer deemed that circumstances warranted the youth being removed from the home. Therefore the assessment of any risk the delinquent posed was based on the professional using an unstructured interview process (Gottfredson & Moriarty, 2006). However, studies found that this "unstructured clinical judgment" (Perrault et al., 2012, p. 487) led to poor accuracy rates and equally poor decisions (Borum & Verhaagen, 2006; Calley & Richardson, 2011).

The advent of risk assessment instruments led to more systematic and empirically based judgments of future risk a juvenile delinquent posed, and therefore appropriate intervention strategies (Chu et al., 2014; Grove & Meehl, 1996). The Youth Level of Service Case Management Inventory (YLS/CMI) is a screening tool designed to estimate a juvenile offender's level of risk and treatment needs relative to various criminogenic factors (Witherup & Verrecchia, 2022), and it is one of the most widely

used risk and needs assessment measures not only in America but also Canada, Australia, Japan, the United Kingdom, and Singapore (Chu et al., 2014; Schwalbe et al., 2007). The YLS/CMI uses a face-to-face interview with the juvenile offender and any relevant family members, as well as a review of any pertinent documents to make an assessment (Cuervo & Villaneuva, 2018; Flores et al., 2004). There are 67 counties in Pennsylvania and all of them use the YLS, which was implemented in four phases between 2009 and 2012 across the Commonwealth (Miller et al., 2021). Pennsylvania is a county based juvenile justice system which means that it is administered at the local level and not from the state capitol (Witherup & Verrecchia, 2022). The Juvenile Court Judges' Commission, the administrative state agency for Pennsylvania's juvenile justice system, encouraged the counties in Pennsylvania to adopt the YLS as, a "cornerstone of Pennsylvania's Juvenile Justice System" (Pennsylvania Juvenile Court Judges' Commission, 2020, p. 1), and they all did.

The YLS/CMI consists of 42 items that relate to the "Central Eight" risk and needs domains, which are prior and current offenses, antisocial attitudes, antisocial friendships, and an antisocial personality (considered "the Big Four"), plus family circumstances, education/employment, substance abuse, and leisure recreation (Witherup & Verrecchia, 2022). The "Central Eight" domains are associated with criminal offending according to the general personality and cognitive social learning (GPCSL) perspective (Andrews & Bonta, 2010). They contain between three (leisure/recreation) and seven (personality and behavior; education/employment) statements that are answered either yes or no. For every yes one point is assigned, and no points are assigned for every no. Under personality and behavior the statements are inflated self-esteem; physically aggressive; tantrums (temper); short attention span; poor frustration tolerance; inadequate guilt feelings; and verbally aggressive, impudent. A score of 5-7 in this domain is considered high risk, a score of 1-4 is moderate risk, and a score of 0 (answer no to all of the statements) is low risk. The higher the total score on the YLS/CMI (out of a possible 42), the higher the risk. For males a score of 29-42 is considered very high risk, and for females very high risk is a score of 32-42.

The appropriate juvenile court intervention should be based on the delinquent's level of risk. Higher risk youth will benefit from more services and they and society would benefit from more restrictions on their freedom (Andres & Dowden, 2006; Andrews & Bonta, 2010). The YLS/CMI not only predicts risk but identifies areas of treatment as well, which if addressed will result in less risk (Flores et al., 2004).

REVIEW OF THE LITERATURE

Witherup and Verrecchia (2022) examined the relationship between score on the YLS/CMI and how long juvenile delinquents spent in a residential treatment facility. They hypothesized that a delinquent with a higher YLS/CMI score (deemed high or very high risk) would spend more time in a treatment facility than a delinquent with a lower score. Using a sample of 152 juvenile delinquents from a county in Pennsylvania who were sent to a residential treatment facility between 2017 and 2020, Witherup and Verrecchia found no relationship between score on the YLS/CMI and placement length (2022).

Like the current study, Flores et al. (2004) not only examined the predictive ability of the YLS but the individual domains as well. Using a sample of juvenile delinquents in Ohio, Flores and colleagues (2004) investigated the predictive ability of the YLS for delinquents in residential settings and under supervision of the probation department. Using follow up data two years after the initial assessment and interviews with correctional staff regarding their perceptions of the YLS, Flores et al. (2004) found that "relatively few of the forty-two items contribute to accuracy in risk classification" (p. 1). Of the eight domains, only three (substance abuse, attitudes/

orientations, and prior and current offense) were related to case outcomes. They concluded that for initial risk classification, the YLS "may not be an appropriate instrument" (Flores et al., 2004, p. 2).

In 2007 Schwalbe conducted a meta-analysis of 11 YLS studies that focused on recidivism of juvenile delinquents, including violations of probation and new offenses. Schwalbe (2007) found that higher scores on the YLS were associated with an increase in recidivism. In another meta-analysis, Olver et al. (2009) found that the YLS had lower predictive validity for recidivism. Examining the psychometric properties of the YLS, Van de Ven (2004) found that the YLS was a reliable predictor of recidivism, although the effect sizes were small.

Perrault et al. (2012) examined whether the implementation of a risk needs assessment (RNA) for juvenile delinquents influenced probation officer recommendations. They addressed whether the self-reported practices of the juvenile probation officers matched their actual case management decisions in an office in a northeastern state which used the YLS/CMI, and two in a southern state which used a different RNA, the Structured Assessment of Violence Risk in Youth (SAVRY) (Perrault et al., 2012). The SAVRY uses a structured clinical assessment and not an actuarial approach to determine a juvenile's risk (Borum et al., 2006). Almost three quarters (73%) of the probation officers who were interviewed for the research stated that they based their recommendations on risk level, while the remaining officers (27%) reported that they did not (Perrault et al., 2012).

While the state government strongly encouraged use of the YLS/CMI across Pennsylvania, the implementation was left up to individual county juvenile probation offices. Using a mixed method approach that utilized both interviews (n=86) and surveys (n=117), Miller et al. (2021) examined the implementation process in five counties in Pennsylvania. They found that officer attitudes were "more positive than negative" towards the YLS/CMI specifically, and risk/needs assessment instruments generally (Miller et al., 2021, p. 219). However, there were officers who were skeptical and said that the YLS/CMI is not as effective in determining risk or treatment needs as the experiences and judgement of individual officers. Others shared concerns about the extra work that completing the YLS/CMI entailed (Miller et al, 2021). However, while most officers completed the YLS/CMI, it appears that fewer used it to inform their decisions about client care (Miller et al., 2021), which would suggest a disconnect between completion of the YLC/CMI and its actual use.

It is acknowledged in juvenile justice that boys and girls have different risk factors when it comes to delinquent behavior (see Pusch & Holtfreter, 2018). Kitzmiller et al. (2022) examined 2,384 youths who were adjudicated delinquent in juvenile court in a midsized Midwestern county. The sample over one quarter (26.2%) female and under three quarters male (73.8%). Using Multi-group confirmatory analysis (CFA), Kitzmiller and colleagues found that the YLS/CMI was a solid predictor of risk, and it was adequate for assessing risk differently for boys and girls, since both groups differed in their risk profile (2022).

As stated earlier, the YLS/CMI is used internationally, and Cuervo and Villaneuva (2018) conducted a study to see if this screening instrument could predict recidivism in juvenile offenders in a Spanish province. The YLS/CMI was completed by a "technical team in the juvenile court" who had been trained on the use of the YLS/CMI for a month (Cuervo & Villanueva, 2018, p. 3566). The juveniles were then measured two years after the initial assessment and it was defined as any charge the juvenile received after that evaluation. Using a sample of 382 juvenile offenders (mean age 16.33 years), it was found that boys were more likely to recidivate than girls. In addition, the juvenile recidi-

vists had a higher mean score on the YLS/CMI than the non-recidivists and scores on the YLS/CMI were correlated with the number of charges during the two year follow up period (Cuervo & Villanueva, 2018). In other words, the YLS/CMI was a significant predictor of recidivism. Of the Central Eight factors the three that were the most significantly correlated with recidivism were school and employment problems, antisocial personality, and delinquent peers.

Chu and colleagues (2014) looked at the validity of the YLS/CMI-SV (Youth Level of Service/Case Management Inventory-Screening Version) as a tool for predicting recidivism of delinquents. Using a sample of 3,264 juveniles who were referred for probation services in Singapore from 2004-2008, Chu et al. concluded that the YLS/CMI-SV was a significant predictor of recidivism at one year, three years, and five years post intervention for both male and female delinquents (2014).

Gomis-Pomares et al. (2022) examined the predictive ability of the YLS/CMI as it relates to recidivism for a group of Roma and non-Roma juvenile delinquents in Spain. There were 88 Roma youth and 135 non-Roma youth for a sample size of 223 (n=223). There was no difference in the average age (Roma m=15.86, sd=1.09; non-Roma m=15.88, sd=1.03) and genders (Roma=68.2% male; non-Roma=66.7% male) of the two groups. Gomis et al. conducted this study to determine if there are differences in the predictive ability of the YLS/CMI for minority groups (2022). Recidivism was measured as reoffending or not, and by the number of delinquent charges after the initial YLS/CMI assessment conducted by the justice department in a province in Spain. Results showed that while the Roma youth reoffended more than the non-Roma youth in terms of number of subsequent delinquent acts, there was no difference between the groups on the dichotomous measure of recidivism (Gomis et al., 2022). Furthermore, the YLS/CMI proved to be a reliable predictor of recidivism, correctly predicting recidivism for 75.3 percent of the Roma group and 75.9% of the non-Roma group.

McGrath et al. (2018) examined the predictive ability of a revised version of the YLS/CMI that is specific to delinquent youth in Australia, the YLS/CMI-AA (Australian Adaptation). They examined almost 5,000 (n=4,887) juvenile offenders as well as an in-depth qualitative analysis of 26 case files. McGrath et al. found that while there were differences in reoffending among boys and girls (girls had higher recidivism rates) and Indigenous and Ethnic youth (Indigenous youth had higher recidivism rates), the "predictive validity [of the YLS/CMI-AA] remained robust" (2018, p. 835).

In 2021, Huang et al examined the applicability of the YLS/CMI with a sample of Indigenous (n=205) and non-Indigenous (n=193) youth in Canada to test the "cross-cultural applicability of forensics practices" (p. 503). The sample of 398 juvenile delinquents in Ontario, Canada, were individually matched on gender and age to examine how well the YLS/CMI assessed risk of recidivism, which was operationalized as "being convicted of one or more offenses within a three year follow up period" from their initial assessment (Huang et al., 2021, p. 506). The three-year recidivism rate for the sample was 70%, but the Indigenous youth had a higher rate than the non-Indigenous youth (82% to 58%). There were no differences in the type of re-offenses. The differences in reoffending were mainly in the low and moderate risk categories, while there were no differences in the high-risk category (Huang et al., 2021). Huang and colleagues (2021) found that the YLS/CMI was a better predictor of recidivism for the non-Indigenous youth than the Indigenous youth, raising questions about its cross-cultural applicability.

The purpose of the current study is to examine the relationship between score on the individual domains of the YLS/CMI and its relationship with disposition decisions in juvenile court, specifically, if the referred juvenile's case was dismissed or handled

informally, or handled formally. It would stand to reason that delinquents with a higher YLS score (high risk) would require a formal disposition because (1) they need more services than a delinquent who is moderate or low risk and (2) they pose a greater risk to the community. Most of the research around the YLS/CMI looks at its predictive ability in regards to disposition length and recidivism. The current study looks inside the YLS/CMI to see if one or more of the "Central Eight" domains is a better predictor of how a case is disposed of in the juvenile court than another.

METHODS

Materials

Data on referrals to the juvenile court in the Commonwealth of Pennsylvania were obtained for the 2021-2022 school year (September through June). As stated earlier, Pennsylvania is a county based juvenile justice system which means that it is administered at the local level and not from the state capitol. Therefore the disposition of these incidents is left up to the county in which they occurred. In 2021-2022 there were 47,852 referrals to the juvenile court, but due to missing and incomplete information over one third (17,893) were excluded from our analysis, which left a sample size of 29,959 (n=29,959). Over 80 percent of the sample were, according to their YLS score, considered low risk (48.4%, coded as 0) or moderate risk (41.6%, coded as 1), while the remaining cases were considered high risk (9.5%, coded as 2) or very high risk (.4% of the sample, coded as 3). The YLS ratings can be found in table 1.

Analytic Plan

Whether the referral to juvenile court was withdrawn or handled informally, or handled formally is the dependent variable in this study. If no petition was filed and the case was handled informally through withdrawal, dismissal, or through informal adjustment or informal probation, it was coded as 1. However if a petition was filed and the case resulted in a consent decree, formal probation, the juvenile being placed in a residential treatment facility, or was referred to criminal court, it was coded as 2. We dichotomized the dependent variable in order to run logistic regression models. Just under over one third of the cases were handled informally (35.4%, coded as 1), and the remaining cases were handled formally (64.6%, coded as 2).

We are trying to determine whether there are differences in the handling of a referral to the juvenile court based on a number of factors, and the dichotomized index predicts the probability of membership in terms of informal or formal case outcomes. We want to learn what combination of our independent and control variables would predict the probability of case outcome in the juvenile court. Logistic regression predicts and explains relationships between a binary dependent variable and one or more variable measured at any level, and it does not require stringent assumptions about the distribution of the predictor variables (Heiman, 2014; Tabachnick & Fiddell, 2007; Weisburd, 1998).

Table 1 YLS Scores

Score	Frequency	Percent
Low Risk	14,500	48.4
Medium Risk	12,463	41.6
High Risk	2,846	9.5
Very High Risk	150	0.5

Two logistic regression models will be run. The first is going to contain the overall YLS risk score as the independent variable along with control variables. The assumption is that if the overall YLS score has no effect on case outcomes, then running a model to examine the effects of the individual domains is illogical. If the overall YLS risk score does have an effect on whether a case was handled informally or formally in juvenile court, then a second logistic regression model will be conducted using all eight domains of the YLS as independent variables along with control variables, to see how many of the domains of the YLS have an effect on the dependent variable.

Control Variables

We are studying the effect of individual domains of the YLS (independent variable) on how a case is handled in juvenile court, whether dismissed or informally, or formally (dependent variable). Felony offenses tend to be dealt with formally while less serious offenses tend to be dealt with informally, and the grades of the alleged charge in our sample were summary (16.2% of the sample and coded as 1), misdemeanor (60.2% of the sample, coded as 2), and felony (23.6% of the sample, coded as 3). Weapon use is a factor that tends to be dealt with formally in juvenile court, and in just over 80 percent of the cases (82.1%) no weapon was used (coded as 1), while a weapon was used (coded as 2) in the remaining 17.9% of the sample. First offenses tend to be dealt with more leniently than repeat offenses and for just about half of the cases in the sample this was their first contact with the juvenile court (49.9%, coded as 1), and the other half the sample (50.1%, coded as 2) has had prior juvenile court involvement.

Race was included as a control variable, and just about half of the sample (48.3%) was white while slightly fewer were black (46.4%). The remaining races were multi-racial (3.8%), Asian (.4%), and unknown (1.1%). Race was dichotomized into white (coded as 1) and non-white (coded as 2). Gender was a dichotomous variable and males (coded as 1) made up over three quarters (77.5) of the sample, and females (coded as 2) were 22.5% of the sample. Most of the sample (48.4%) had parents who were never married (coded as 2). All other categories for parental status were combined into the variable other (coded as 1), which made up 51.6% of the sample. Our final control variable was living arrangement. Over half of the sample (53.0%) was living with their mother only (coded as 1) at the time of the incident, and all other categories for living arrangement were combined (making up 47.0% of the sample) into the variable other and coded as 2. The control variables can be found in table 2.

Table 2 Control Variables (*N* =5,980*)*

Variable	Frequency	Percent
Offense Level		
Summary	4864	16.2
Misdemeanor	18046	60.2
Felony	7049	23.5
Weapon Use		
No	24,596	82.1
Yes	5,363	17.9
Priors		
Yes	15,009	50.1
No	14,950	49.9
Race		
White	14,470	48.3
Black	13,901	46.4
Multi-Racial	1,138	3.8
Asian	120	0.4
Unknown	330	1.1
Sex		
Male	23,218	77.5
Female	6,741	22.5
Parental Status		
Both Deceased	59	.2
Divorced	2,666	8.9
Married	4,374	14.6
One Parent Deceased	2,037	6.8
Parents Never Married	14,500	48.4
Separated	2,187	7.3
Other	4,164	13.9
Living Arrangement		
Both Parents	4,909	16.4
Father	2,842	9.5
Father and Step-Mother	415	1.4
Mother	15,874	53.0
Mother and Step-Father	1,344	4.5
Relative	2,752	9.2
Other	1,823	6.1

RESULTS

Our first model was statistically reliable (Model $\chi 2(7)=402.856$, $p < .001$), and it correctly predicted over 60 percent (62.7%) of the cases. Within the model the overall YLS score was statistically significant ($\beta=.080$, $p<.001$), and in the expected direction. Juveniles with a higher YLS risk score were over 100 percent (Exp(B)=1.084) more likely to have their case handled formally than juveniles with lower YLS risk scores. Males ($\beta=-.288$, $p<.001$) were 75 percent (Exp(B)=.750) more likely to have their cases handled formally than females. Juveniles living with their mother only ($\beta=-.031$, $p<.01$) were almost 100 percent (Exp(B)=.969) more likely to have a formal disposition, as were juveniles who used a weapon ($\beta=-.247$, $p<.01$, Exp(B)=.781), committed a more serious offense ($\beta=.206$, $p<.001$, Exp(B)=1.229), and were non-white ($\beta=.216$, $p<.001$, Exp(B)=1.242). The results of our first logistic regression model can be found in Table 3.

Since the first model demonstrated that the overall YLS score was a significant predictor of case handling in juvenile court, we ran a second logistic regression model with the same control variables, but this time with each of the eight YLS domains to see which of them had an effect on whether a case was handled informally or formally in juvenile court. The Cronbach's Alpha for the eight individual domains was a respectable .805. Our second model was also statistically reliable (Model $\chi 2(14)=486.788$, $p < .001$), and it also correctly predicted over 60 percent (63.1%) of the cases. In this model each of the control variables that were significant in model one were also significant, and in the same direction, except for living arrangement, which was not significant ($\beta=-.029$, $p>.05$). Of the eight YLS domains five were statistically significant in this model, and they were prior record ($\beta=.713$, $p<.001$), peers ($\beta=.178$, $p<.001$), leisure ($\beta=.207$, $p<.001$), personality ($\beta=.240$, $p<.001$), and attitude ($\beta=.322$, $p<.001$). The results of the second logistic regression model can be found in Table 4.

Table 3. Logistic Regression Results for Model 1 (YLS Overall Score Only)

Variable	B	S.E.	Wald	df	Sig.	Exp(B)
Gender***	-.286	.056	23.636	1	.001	.750
Parental Status	.004	.019	.048	1	.826	1.004
Living Arrangement**	-.031	.011	7.516	1	.006	.969
Weapon Use**	.247	.092	7.261	1	.007	.781
Charge Grade***	.206	.055	13.890	1	.001	1.229
Race***	.216	.058	14.082	1	.001	1.242
YLS/CMI***	.080	.005	298.00	1	.001	1.084
Constant	-.306	.191	2.571	1	.109	.736
Model Chi-Square	402.856					
Negelkerke R2	.088					

*** p<.001
** p<.01

Table 4. Logistic Regression Results for Model 2 (Individual YLS Domains)

Variable	B	S.E.	Wald	df	Sig.	Exp(B)
Gender***	-.266	.060	19.606	1	.001	.767
Parental Status	.000	.019	.000	1	.987	1.000
Living Arrangement	-.029	.011	6.290	1	.012	.972
Weapon Use**	.278	.093	9.045	1	.003	.757
Charge Grade***	.228	.056	16.612	1	.001	1.256
Race**	.168	.059	8.275	1	.004	1.183
Prior Record***	.713	.088	65.297	1	.001	2.039
Family	.136	.071	3.712	1	.054	1.146
Education	-.002	.053	.001	1	.976	.998
Peer***	.178	.050	12.650	1	.001	1.195
Substance	-.064	.040	2.556	1	.110	.938
Leisure***	.207	.037	31.998	1	.001	1.230
Personality***	.240	.055	19.292	1	.001	1.271
Attitude***	.322	.064	25.369	1	.001	1.380
Constant	-.206	.198	1.079	1	.299	.814
Model Chi-Square 486.788						
Negelkerke R^2 .105						

*** p<.001
** p<.01

DISCUSSION

In the juvenile court handling a case formally means that a petition was filed so the juvenile in question has a record (at least in juvenile court), and the probation office can provide closer supervision and more intensive services. In light of this it would appear that the probation offices relied on the YLS in making their decision regarding how to handle the referrals-being deemed a risk translated into having a case handled formally. You would want juveniles who pose more of a risk to the community to be closely supervised. In addition, formal sanctions last longer than informal sanctions. For example, formal probation in Pennsylvania can last from six months to a year or longer, although some counties have an open-ended probation length. However, informal probation in Pennsylvania cannot last for more than three months.

Since the overall YLS risk score was significant in the first model it was somewhat surprising that three of the eight individual domains were not statistically significant in the second model. However, prior research (Flores et al., 2004) found that only three of the eight individual domains were accurate predictors of future risk, two of which (attitudes/orientations, and prior and current offense) were significant in the current study. McGrath at el. (2018) found four of the Central Eight subgroup were significant predictors of recidivism (family and living, substance abuse, leisure and recreation, and personality and behavior), and Miller et al. (2021) found that juvenile probation officers "routinely emphasized family and education…while leisure/ recreation, personality/behavior, and attitude/ orientation" were not (p. 223). Perhaps this indicates that some of the YLS domains are more important to juvenile justice professionals than others. However,

since there is not consistency among what domains were statistically significant and which were not, this might indicate that while juvenile probation officers were completing the risk assessment instrument, they were not following them in their practice (see Miller et al., 2021). This is an area of follow up research that could best be explored qualitatively.

A juvenile referred to the probation department who had prior involvement with the juvenile court was over 200% more likely (Exp(B)=2.039) to have their case handled formally than a juvenile who did not have prior involvement with the court, and this stands to reason. As stated earlier, juveniles with prior juvenile court contact tend to have a subsequent offense handled formally, even if the second offense is a misdemeanor. Of all of the significant YLS domains, prior juvenile court involvement had the largest effect on case outcome. Having delinquent peers or few positive friends or acquaintances (Exp(B)=1.195), having no or very few personal interests (Exp(B)=1.230), being impudent (Exp(B)=1.271), and having little to no concern for others (Exp(B)=1.380) each increased the probability of a formal case outcome by over 100%, while poor relations with family members (β=.136, $p>.05$), disruptive school behavior (β=-.002, $p>.05$), and having substance abuse linked to the offense (β=-.064, $p>.05$) had no effect on case processing in juvenile court.

The control variables included two legal factors (weapon use and grade of charge) and four extra-legal variables (gender, parental status, race, and living arrangement). Juveniles who used a weapon and committed a more serious delinquent act tended to have their cases handled formally, which is as it should be. Felony offenses are almost always dealt with formally in the juvenile court. While a juvenile who commits a lesser offense (summary or misdemeanor) tends to have their case handled informally, a second offense, even if it is for another lesser offense, will almost always be handled formally. In other words, the system seems to be reacting to legal factors appropriately.

Not every case referred to the juvenile court is handled the same way, nor should it be. Like all other criminal justice professionals, juvenile proba-tion officers are granted, and exercise, a great deal of discretion. More serious cases involving a weapon should be handled formally, as should juveniles who are deemed to be more of a risk. However in the current study the majority of cases were for non-felony offenses (86.4%) and did not involve a weapon (82.1%), and involved juveniles who were considered low risk (48.4%), yet almost two-thirds of the referrals were handled formally (64.6%). These are not legal factors that usually call for a juvenile to be labeled a delinquent The effects of being officially labeled a delinquent have been well established and include ineligibility for certain federal student loans (Lovenheim & Owens, 2014) and being less likely to complete high school (Hjalmarsson, 2008). It seems that unless necessary, this label should be avoided.

The significance of the extra-legal factors is in line with previous research. Females were less likely than males for formal juvenile court involvement, which aligns with work by Leban and Gibson, 2020, and Novak, 2019. White delinquents were less likely to have their case handled formally than non-white white youths, which is also similar to previous research (Kovera, 2019; Leiber & Fix, 2019). Finally, being raised by a single mother was a significant predictor of formal juvenile court involvement compared to all of the other parental living situations, which is also not an uncommon theme in the literature (Demuth & Brown, 2004; Verrecchia & Arp, 2015; Verrecchia & Wood, 2017).

This is exploratory research with method-ological limitations. Even though this is statewide data it was still collected from only one state so generalizability is limited. Also, any future effects cannot be projected since we only looked at one year of data. Future research should include longitudinal,

nationally representative data. A qualitative component should be added to future research. It would be beneficial to see if our conclusion about some domains of the YLS being more important than others holds water, and if so, why that is the case. This could only be accomplished by interviewing the people using the screening tool. Also, there are other legal and extra-legal factors that would have been helpful in our analysis. While whether the juvenile in question had a prior referral to juvenile court was known, the number of prior referrals would be been helpful in the analysis. In addition, there were no data regarding socio-economic status.

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DECLARATION OF INTEREST

The authors report no conflict of interest.

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