

The Relationship Between YLS Score and Length of Placement

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ABSTRACT

Data were obtained from a county juvenile probation department in Pennsylvania to examine the predictive ability of the Youth Level of Service Case Management Inventory (YLS/CMI) relative to the number of days a juvenile delinquent spent in a residential treatment facility. An analysis of 152 delinquents in placement ($n=152$) revealed that there is no relationship between scores on the YLS and days spent in a treatment facility. In addition, no relationship was found between days spent in placement and any of the covariates examined.

KEYWORDS: Delinquency, treatment, prediction, regression analysis

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INTRODUCTION

The Relationship Between YLS Score and Placement Length Juvenile probation officers are asked to make dispositional (sentencing) recommendations for the youth placed in their care. These dispositions can range from informal supervision to placement of the youth in a residential treatment facility, or even a recommendation that the juvenile and society would be better served if the youth were placed into the adult criminal justice system. Some of these decisions involve the officer making a judgement about the juvenile's likelihood of reoffending and the risk that youth poses to the community (Perrault et al., 2012).

Risk assessment instruments are designed to be objective assessment procedures that classify persons and predict behaviors based on a multitude of risk factors. Said differently, these instruments attempt to identify offenders at risk for subsequent offending so that the justice system can provide these individuals with the necessary sanctions

and rehabilitative services to reduce offending behaviors (Schwalbe, 2007). A number of empirically based classification tools and risk assessment instruments have been developed by researchers over the past several decades and are being used with increasing frequency as part of many correctional intervention programs (Andrews & Bonta, 2010).

The Youth Level of Service Case Management Inventory 2.0 (YLS/CMI) is a screening tool designed to preliminarily estimate a juvenile offender's level of risk of antisocial behavior and treatment needs relative to various static and dynamic criminogenic factors (e.g., prior and current offenses/dispositions and peer relations). Traditionally the assessment of reoffending and subsequent intervention efforts was based on the professional judgement of a juvenile probation officer or similarly trained clinician using an unstructured interview process (Gottfredson & Moriarty, 2006). Research 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). However, the advent of structured risk assessment instruments has led to more systematic and empirically based judgments of future risk and therefore appropriate intervention strategies (Chu et al., 2014). They are used to help professionals working with delinquent youth develop effective case plans (Villaneuva et al., 2020).

The YLS/CMI is one of the most widely used risk and needs assessment measures in America as well as Canada, Singapore, Australia, Japan and the United Kingdom (Chu et al., 2014; Schwalbe et al., 2007). Its use involves a face to face interview with the juvenile offender and his or her parents or guardians, as well as a review of case records to gather additional information (Flores et al., 2004). The YLS consists of 42 items that relate to the “Central Eight” risk and needs domains, which are prior and current offenses, family circumstances, education/employment, peer relations, substance abuse, leisure recreation, and attitudes/orientations. The “Central Eight” variables are implicated in criminal offending according to the general personality and cognitive social learning (GPCSL) perspective which states that criminal conduct is influenced by the “Big Four” variables of past antisocial behavior, antisocial associates, antisocial personality patterns, and antisocial cognition (Andrews & Bonta, 2010). On average the YLS takes about an hour to complete (Hoge et al., 1996).

Within each of the “Central Eight” areas of the YLS are between three (in leisure/recreation) and seven (in personality/behavior and education/employment) yes/no statements that are scored 1 for yes and 0 for no. For example, under leisure/recreation are limited organized activities, could make better use of time, and no personal interests. A yes to each would yield a score of 3 in that particular domain which is considered high risk (a score of 2-3 is considered high risk), while a score of 1 indicates moderate risk, and a score of 0 indicates no risk. Under family circumstances there are six categories: inadequate supervision, difficulty in controlling behavior, inappropriate discipline, inconsistent parenting, poor relations with mother-child, and poor relations with father-child. If the total for this area of the YLS is 0-2 then this is considered

a low-risk area, 3-4 constitutes a moderate risk, and 5-6 means that this is a high-risk area. Therefore, the higher the total score on the YLS (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 categories for overall risk are very high, high, moderate, and low.

According to the risk need responsivity (RNR) framework (see Andrews & Bonta, 2010), accurate classification of risk is necessary for professionals to make informed decisions regarding appropriate levels of supervision. The intensity of intervention should be attached to the delinquent’s level of risk. Higher risk youth will benefit from more intensive services and possibly more restrictions on their freedom (Andrews & Bonta, 2010; Andres & Dowden, 2006). The YLS not only predicts risk but identifies areas of treatment, which if addressed will ideally result in less risk of reoffending (Flores et al., 2004). While most studies on the RNR framework have examined recidivism rates of offenders (see Andrews & Dowden, 2005), the purpose of the current study is to examine the relationship between score on the YLS and the number of days a juvenile delinquent spends in a residential treatment facility (placement). It would stand to reason that delinquents with a higher YLS score (high risk) would require longer stays in residential treatment facilities because (1) they pose a greater risk to the community and (2) they need more treatment than a delinquent who is moderate or low risk. Most of the research around the YLS looks at the relationship between predicted risk and recidivism, so by examining risk level and time spent in a residential facility the current study addresses a gap in the literature.

REVIEW OF THE LITERATURE

Chu and colleagues (2014) examined the validity of the YLS/CMI-SV (Youth Level of Service/Case Management Inventory-Screening Version) for “predicting different recidivistic outcomes within an Asian context” (p. 1440). Their sample consisted of 3,264 juveniles between the ages of 12 and 18 who were referred to the Probation Service

Branch of the Ministry of Social and Family Development in Singapore over a four year period (2004-2008). Chu et al. (2014) found that the YLS/CMI-SV was a significant predictor of general, violent, and non-violent recidivism at one year, three years, and five years post intervention. In addition, the predictive validity of the YLS applied to both male and female delinquents.

Schwalbe (2007) conducted a meta-analysis of 11 YLS studies that focused on recidivism which included arrests for new offenses and new adjudications. A mean weighted area under the curve (AUC) score of .64 indicated a moderate predictive effect. The AUC ranges from 0 (a perfect negative correlation) to 1.0 (a perfect positive correlation) (Rice & Harris, 2005). Schwalbe (2007) found that higher scores on the YLS were associated with an increase in recidivism. Olver et al. (2009) in a meta-analysis of 19 YLS studies found a lower correlation between YLS scores and recidivism (.32), and that the YLS had lower predictive validity for general recidivism (any form of sexual, violent and nonviolent offenses) committed during the follow up period. Examining the psychometric properties of the YLS, Van de Ven (2004) found that the total score of the YLS correlated with number of police contacts, number of new criminal charges, and number of new criminal convictions, although some of the effect sizes were small.

Flores and colleagues (2004) tested the applicability of the YLS with juvenile offenders in Ohio across different settings: residential, institutional, and under supervision of the probation department. Follow up data were collected two years after the initial assessment, and interviews were conducted with correctional staff regarding their perceptions of the YLS. According to Flores et al. (2004), “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).

Onifade et al. (2008) used a sample of juvenile offenders to examine the accuracy and validity of the YLS/CMI in predicting recidivism as well as to explore the relationship between recidivism and risk level (i.e., high risk, moderate risk, and low risk). Participants included 328 male and female probationers between 10 and 16 years of age ($M=14.7$). Onifade et al. (2008) found that the YLS/CMI significantly predicted recidivism for juvenile offenders over a one-year period. Further, the YLS/CMI significantly predicted differences in recidivism by risk level, such that juvenile offenders classified as high risk were more likely to reoffend sooner than juvenile offenders classified as low risk.

In 2012 Perrault and colleagues examined whether the implementation of a risk and need assessment (RNA) for reoffending in probation offices impacted the recommendations made by the probation officers. The researchers addressed whether the self-reported practices of the juvenile probation officers matched their actual case management decisions. Four juvenile probation offices were used in this study, two in a northeastern state and two in a southern state (Perrault et al., 2012). The offices in the northeastern state used the YLS/CMI, and the offices in the southern state used the Structured Assessment of Violence Risk in Youth (SAVRY). The SAVRY was designed to assess violence risk in juveniles age 12-18 years, and it uses a structured professional judgement approach and not a formulaic actuarial approach to determine a juvenile’s risk for violence (low, moderate, or high) (Borum et al., 2006). Forty-four juvenile probation officers were interviewed for this study, 12 of whom (27%) reported that their referrals for service were not based on risk level, while 32 officers (73%) said that their referrals for service were based on risk level. There were no demographic differences between these officers (Perrault et al., 2012). While higher risk youth received more referrals for service than moderate or low risk youth, this was dependent on the office and not the RNA assessment. When it came to placing juvenile delinquents in residential treatment facilities, however, the officers making the referrals did rely on the RNA (Perrault et al., 2012).

Guy and colleagues (2014) used quantitative and qualitative analyses to explore effective implementation of the SAVRY and the YLS/CMI as well as the perceptions of juvenile probation officers (JPOs) using these tools for case management decisions. Participants included 71 JPOs using either the SAVRY or the YLS/CMI who were interviewed at three and ten months following implementation of these tools across six probation offices. Guy and colleagues (2014) reported that “the same general implementation and training procedures were followed” (p. 239); however, “buy-in” for either the SAVRY or the YLS/CMI varied from office to office. With regard to perceptions about usefulness, JPOs identified these tools as either ‘somewhat’ or ‘very’ helpful. With regard to perceptions about difficulties, JPOs identified the additional time need for report completion as a barrier (Guy et al., 2014).

Villaneuva et al. (2020) created and tested a shorter version of the YLS. Using a sample of 420 delinquent youth between the ages of 14 and 19 years, they used the YLS/CMI to determine the most significant risk and protective factors to propose a shorter version of the YLS. They found a combination of seven items that, combined, had better predictive ability for recidivism than the full version of the YLS. Additionally, this difference did a better job of predicting general recidivism across the sample across gender and ethnicity for two years after the original version was implemented (Villaneuva et al., 2020).

Campbell and colleagues (2014) explored the predictive ability of the original 42-item YLS/CMI and a 10-item shortened version of this assessment, using two samples of male and female juvenile offenders with no prior record. The first sample, or the scale construction sample, was administered the original YLS/CMI in order to empirically derive the shortened assessment. Participants included 558 juveniles who ranged from 9 to seventeen years of age ($M=14.24$). The second sample, or the independent, cross-validated sample, was used to examine the predictive ability and reliability of the shortened assessment. Participants included 217 juveniles who ranged from 8 to seventeen years of age ($M=14.6$). Campbell and colleagues

(2014) found that both the original 42-item YLS/CMI and the 10-item shortened assessment significantly predicted recidivism for both male and female juvenile offenders over a two-year period.

METHODS

Materials

Data were obtained from a county juvenile probation department in central Pennsylvania. There are 67 counties in Pennsylvania, all of which use the YLS. Pennsylvania is a county based juvenile justice system, which means that the YLS is administered at the local level and not from the state capitol. Nonetheless, the Juvenile Court Judges’ Commission, which is the agency that oversees Pennsylvania’s juvenile justice system, has encouraged the counties in Pennsylvania to adopt the YLS. Using the YLS is a “cornerstone of Pennsylvania’s Juvenile Justice System” (Pennsylvania Juvenile Court Judges’ Commission, 2020, p. 1).

The current data set consisted of all juvenile delinquents sent to a placement facility from 2017-2020 ($n=376$) in one county in Pennsylvania. Due to missing and incomplete data 224 cases were removed, leaving a sample size of 152 delinquents ($n=152$). The majority of delinquents were placed in 2017 (40.2%), and the fewest were placed in 2020 (11.7%). The number of placements for each year can be found in Table 1.

Year	Frequency	Percent
2017	151	40.2
2018	104	27.7
2019	77	20.5
2020	44	11.7

Participants

The majority of the sample was male (92.1%), and the average age was 16.24 years. Over half of the sample (59.2%) was 16 or 17 years old, and the age range was 13 to 19 years. The most frequent reason for being placed in a

residential facility was a technical violation of probation (44.7%). While a technical violation can occur for a number of reasons (e.g., missing appointments, poor grades in school, or testing positive for drug use), this means that most of the placements were not for committing another delinquent act. The most common criminogenic need (“Central Eight”) was family circumstances/parenting (28.9%). For the vast majority of the sample

(98.0%) this was their first placement. Most of the juvenile delinquents were considered to be very high risk (38.8%) (coded 4), while less than ten percent (6.6%) were considered to be low risk (coded 1). The average length of stay in a residential treatment facility was 183.71 days (range=6-804). The demographics for the sample can be found in Table 2.

Table 2: Participant Demographics (N =152)

Demographic		Frequency	Percent
Sex	Male	140	92.1
	Female	12	7.9
Age	13	5	3.3
	14	14	9.2
	15	19	12.5
	16	45	29.6
	17	45	29.6
	18	18	11.8
	19	6	3.9
Reason for Placement			
New Offense		32	21.1
Probation Violation		68	44.7
Probation Violation/New Offense		52	34.2
Criminogenic Need			
Peer Relations		23	15.1
Family Circumstances / Parenting		44	28.9
Personality/Behavior		31	20.4
Substance Abuse		17	11.2
Attitudes/Orientations		7	4.6
Education/Employment		22	14.5
Leisure/Recreation		8	5.3
First Placement			
Yes		3	2.0
No		149	98.0
YLS Risk Level			
Very High		59	38.8
High		38	25.0
Moderate		45	29.6
Low		10	6.6

Analytic Plan

The YLS score served as the fundamental independent variable, and total days in placement was the dependent variable. Since the current study utilizes binary logistic regression in order to predict length of placement from YLS score, days spent in placement was dichotomized. This method was chosen in order to present the log odds to quantify the strength of association between the independent and control variables and the dependent variable (number of days in placement). As noted above, due to cases missing the number of days in placement, a sample size of 152 delinquents remained. However, analysis of the demographic makeup of the full sample ($n=376$) and the adjusted sample ($n=152$) found that the nature of the sample (e.g., percentage female, average age, etc...) did not change. In other words, the sample looked the same with 152 participants as it did with 376 participants. The median number of days in a residential placement was 160. As such number of days in placement was recoded as less than 160 days in placement (recoded as 1), and 160 days in placement and longer (recoded as 2). There are 76 cases in each group. The demographic variables in the current study will serve as covariates.

RESULTS

As stated, the dependent variable (total days in placement) was dichotomized in order to run a binary logistic regression model, because the goal of the current study was to predict the probability of membership in one of two groups, fewer than 160 days in placement, or 160 or more days in placement. Logistic regression does not require stringent assumptions about the distribution of the predictor variables (Tabachnick & Fidell, 2007), so if the YLS predicts correctly, very high and high risk juvenile delinquents (coded 2) should spend more time in residential placement than moderate and low risk juvenile delinquents (coded 1).

Regression results indicate that the overall model was not statistically reliable (Model $\chi^2(6)=5.439$, $p > .05$), and it correctly predicted half (50%) of the cases. Neither the independent variable (YLS score) nor any of the covariates had a significant effect on the length of stay in a residential placement.

Table 3. Logistic Regression Results for YLS and Length of Placement

Variable	B	S.E.	Wald	df	Sig.	Exp(B)
Age	.019	.121	.024	1	.818	1.019
Sex	-1.107	.697	2.521	1	.112	.331
Reason for placement	.235	.235	.993	1	.319	1.264
YLS risk level	.061	.171	.126	1	.722	1.063
Criminogenic need	-.058	.092	.400	1	.527	.944
First placement	-.897	1.269	.500	1	.480	.406
Constant	2.227	3.293	.457	1	.499	9.270
Model Chi-Square	5.439					
Nagelkerke R ²	.047					

DISCUSSION

To say the results come as a surprise would be an understatement. Not that the YLS was not predictive of days spent in placement, but that not one of the variables were significant in the model. This begs the question, if decisions about length of stay in a residential placement are not based on predicted dangerousness (YLS score), age, or criminogenic need, on what are they based?

One reason could be the limitation of the current context. Since almost half of the sample was sent to a residential treatment facility because of a technical violation of probation, it is possible that these are not dangerous juveniles, so the YLS 2.0 would not predict them to be so. In other words, maybe the YLS 2.0 was correct in the risk assessment of these juveniles, but they were placed in a treatment facility for reasons that had nothing to do with being a danger to the community (violating the technical rules of probation).

It is interesting that 44 percent of the delinquents in a residential placement were sent there due to a technical violation of their probation. As mentioned previously, a technical violation can be not maintaining court ordered contact with a probation officer, failing in school, or testing positive for using drugs, among other things. While the data do not give any insight as to what the technical violation was, since it was a technical violation it can be suggested that almost half of the delinquents who were sent to a residential treatment facility did not commit a new delinquent act.

Implications for policy and research go hand in hand. As stated, every county in the Commonwealth of Pennsylvania (67) uses the YLS 2.0 as a screening tool for juveniles referred to the probation department; however, only one department was analyzed in the current study. Additional research conducted on the predictive ability of the YLS 2.0 would allow county officials to make more informed decisions as to its efficacy. Said differently, researchers must continue to study the relative effectiveness of these types of

interventions, as it is essential to develop a foundation of knowledge that allows law makers and other interested parties to make informed decisions about which crime control approaches work best to deter potential offenders and reduce victimization.

This is a quasi-experimental study with methodological limitations. Since data were collected from one probation office, and the sample size was small, the results cannot be generalized. Also, data were not included, such as the race of the delinquent, reasons for prior placement(s), and the nature of the technical violation of probation that led to placement in a facility, that would have helped to explore the nature of the YLS-days in placement relationship further. Another limitation was one quarter of the data was collected during the Covid-19 pandemic. As can be seen in Table 1, there was a precipitous decline in the number of placements in 2020 compared to 2019, 2018, and 2017. Also, while the YLS was used to assess the risk of these juveniles, it is not clear if the juvenile probation officers considered the YLS score when they made their decisions about the disposition of these cases. Research has found that probation officers were reluctant to make decisions about risk using actuarial tools like the YLS, instead relying on their professional judgement (Richardson, 2008). Future research should expand on the developing works of scholars, such as Guy et al. (2014), in order to develop a better understanding about the perceptions of criminal justice professionals using validated instruments in practice. Specifically, research should continue to expand on areas that can include organizational culture, adherence to implementation and practitioner use, sustainability practices, preferences related to use of professional judgement versus actuarial tools, and perceived advantages and disadvantages of assessments.

While no significant results were found, the current research is intended to add to the literature on the predictive ability of the YLS. According to the Justice Policy Institute (2021), in 2019 the average cost per day for a juvenile delinquent in a residential treatment

facility was \$588.00. In Pennsylvania, where this study was conducted, the average cost to send one juvenile delinquent to a placement facility for one year in 2019 was \$210,605.00 (Justice Policy Institute, 2020). If the decisions to allocate considerable financial resources are not being based on perceived risk to the community based on the YLS score, how are they being made?

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DECLARATION OF INTEREST

The authors report no conflict of interest.