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## Assessing the Predictive Validity of the Youth Level of Service Case Management Inventory 2.0 in a Sample of Rural Juvenile Offenders

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Assessing the predictive validity of the Youth Level of Service Case Management  
Inventory 2.0 in a sample of rural juvenile offenders

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GRAND VALLEY STATE UNIVERSITY

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## **Abstract**

This study evaluates the predictive validity of a juvenile risk need assessment, the Youth Level of Service/Case Management Inventory 2.0 (YLS/CMI), on a rural population of 215 juvenile offenders using a logistic regression model. The study includes the use of social and demographic variables as control variables, including gender, age, race, special education status, offense type, history of abuse and neglect, and the presence or absence of a police department in the geographic location of crime. The result of the study shows that the YLS/CMI composite risk score significantly predicted recidivism, ( $\chi^2=19.796$ ,  $df=1$ ,  $N=188$ ,  $p \leq .01$ ). Directions for future research, policy, and practice are also reviewed.

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# Assessing the predictive validity of the Youth Level of Service Case Management Inventory 2.0 in a sample of rural juvenile offenders

## **Chapter 1: Introduction**

The practice of administering risk needs assessments to individuals in a criminal justice setting fits into a broader model of correctional practice known as the Risk Needs Responsivity (RNR) framework. The risk principle of the RNR framework recommends identifying and targeting offenders with a higher propensity for continued criminal offending for intervention. The Need Principle suggests that correctional interventions should target criminogenic needs that can be changed and affect the individual's risk for continued offense. The Responsivity Principle describes factors that may influence the appropriateness of the type of intervention used for an individual (Andrews, Bonta & Hoge; 1990). Assessing risk for continued criminal behavior assists court systems in this process by identifying offenders that are likely to continue criminal behavior and can be targeted for more intensive supervision and services (Andrews & Bonta, 2010; Vincent et al., 2012). A useful assessment will assist practitioners in matching appropriate interventions to an offender's risk and needs in order to lower the individual's likelihood of continuing to offend (Andrews & Bonta, 2010). Actuarial assessment instruments have been proposed as a method for assessing risk that limits bias and is more accurate in identifying risk than clinical judgement alone (Latessa & Lovins, 2010).

In juvenile justice, one widely used risk needs assessment instrument is the Youth Level of Service/Case Management Inventory 2.0 (YLS/CMI) (Hoge & Andrews, 2011). Developed in 2002 the YLS/CMI is based on General Personality and Cognitive Social Learning theory presented by Andrews & Bonta (2010) (Hoge & Andrews, 2011). This theory has informed the Risk Need Responsivity model of correctional practice. The YLS/CMI is an assessment of 42



dichotomously scored risk need factors deemed to be predictive of criminal behavior. Risk need factors, also referred to as criminogenic needs, are factors that exist that are associated with increased likelihood that an individual will engage in criminal behaviors (Andrews & Bonta, 2010). The risk need factors are organized in eight sub-scales. The composite score is converted into risk level categories of low, medium, high and very high (Hoge & Andrews, 2011). Different scales for risk level categorization are available for male and female offenders and for community and correctional settings. The intent of the instrument is to assess an individual's general risk for recidivism (Hoge, 2001). The instrument's authors contend that their assessment fits the RNR framework and can effectively assist juvenile justice professionals in identifying a juvenile's risk, need, and responsivity factors (Hoge & Andrews, 2011).

Standardized off the shelf risk needs assessment tools like the YLS/CMI are developed so that a local court system can use and be trained in the instrument without creating its own risk needs assessment. However, the developers of the instrument recommend that it be tested for local predictive validity to ensure that the tool is useful for the population in which the local jurisdiction is operating (Hoge, 2001). Meta-analysis of the predictive validity of risk needs assessment, specifically the YLS/CMI, has shown some variation in its ability to predict continued offending within various populations (Schwalbe, 2007). Simply advocating for the adoption of a standardized assessment may make incorrect assumptions about the risk needs assessment tool's ability to provide useful information about an individual's risk of recidivism locally.

Well tested risk needs assessment instruments have the potential to assist in the reduction of bias, improve use of resources, and lay a foundation for effective case management and programmatic decisions (Hoge, 2001; Latessa & Lovins, 2010). These outcomes are predicated

on the ability of the risk assessment to accurately identify youth who are most at-risk for continued offenses and will be most impacted by interventions. Jurisdictions must continue to assess standardized, off the shelf instruments for predictive validity using their specific population in order to ensure that the assessment process is effective. The opportunities for continued research and conversation about the usefulness of risk assessment in juvenile justice systems is addressed in the proposed research project, which seeks to add to the research related to the predictive validity of the YLS/CMI within the context of a rural Michigan juvenile court.

### **Prevalence of Risk Assessment and Current Policy Considerations**

The use and implementation of risk needs assessment in juvenile justice systems varies across the country and even among jurisdictions within states. At the federal level, The Juvenile Justice and Delinquency Prevention Act of 2002 promotes the practice of States assisting courts to use risk assessments to determine appropriate interventions for juveniles (JJDP Act of 2002, 42 U.S.C. Sec. 5663, p. 18). Michigan does not currently have a universally used risk needs assessment for juvenile offenders in county juvenile justice systems (Juvenile Justice Vision 20/20, 2013; JJGPPS; 2016). However, assessment and decision-making continues to be a part of the political and policy conversations in juvenile justice. State and grassroots initiatives have begun to explore implementation and use of evidence based juvenile justice practices, including risk needs assessment (Juvenile Justice Vision 20/20, 2013; Staley & Weemhoff, 2013, Snyder, 2015). In Michigan, the increased attention on the use of risk needs assessment elevates the importance of local jurisdictions collecting and using their own data and evaluation of these tools to maintain their unique voice within this conversation.

The Michigan juvenile justice system is county based, meaning each county is autonomous in creating its own juvenile court system structure and processes within the greater

framework of statute and state requirements (National Center of Juvenile Justice, 2006). Because of the fragmented structure of the Michigan juvenile justice system and lack of data, it is difficult to know exactly how widespread the use of validated risk needs assessments is in Michigan (Juvenile Justice Vision 20/20; 2013). However, a recent survey of jurisdictions within the state found that 70% of the respondents were using some kind of assessment, with 28% of respondents using an assessment that evaluated criminogenic risk (Juvenile Justice Vision 20/20; 2013). However, the response rate for the survey included less than 60% of the state's jurisdictions (Juvenile Justice Vision 20/20; 2013). In study by Shook and Sarri (2007), 63% of courts in a four state region that included Michigan utilized some type of risk assessment, though 35% utilized an assessment that included risk, needs, and security classification. Evaluation of criminogenic needs and risk for continued offense is the recommended mode of assessment within the Risk Need Responsivity model (Andrews & Bonta, 2010)

### **Problem Statement**

The research analyzes a county juvenile court's risk needs assessment data in order to assess its ability to predict a juvenile's continued criminal offending. This explores the utility of the YLS/CMI as a tool for aiding in the decision-making and case planning processes for a local juvenile court during the intake process using the RNR model. The predictive validity of the YLS/CMI has been researched since its inception. However, there are variability in the results (Schwalbe, 2007; Onifade et al., 2008a). General tests of the instrument's ability to predict risk have paved the way for the evolution of research questions regarding the potential impact that race, gender, location, time, and type of offense may have on the accuracy of the instrument and in explaining the variation in offending (Anderson et. al, 2016; Khanna et. al, 2014; Li, 2015;

Onifade et. al, 2014; Onifade, Davidson & Campbell, 2009, Onifade et. al, 2011, Schwalbe, 2008; Vaswani & Merone, 2014). Little research has focused on rural jurisdictions. This research adds to the existing studies that examine the predictive accuracy of the YLS/CMI as it relates to the total risk score predicting new offenses. The study incorporates race, gender, age, criminal offense type, special education, abuse and neglect history, and geography in order to also consider how external factors outside of the risk needs assessment total score may impact the predictive accuracy of the instrument.

### **Research Question**

The research question that this study addresses is if the YLS/CMI 2.0 composite risk score predicts continued offending.

- Independent Variable: YLS/CMI 2.0 composite risk score
- Dependent Variable: Recidivism

### **Hypothesis**

For the purpose of this research, the null hypothesis is used for the research question:

- H1: The YLS/CMI 2.0 composite risk score does not predict recidivism

### **Theoretical Underpinnings**

The Youth Level of Service/Case Management Inventory 2.0 is based on the General Personality Cognitive Social Learning (GPCSL) perspective of behavior (Hoge & Andrews, 2011). This perspective, outlined by Andrews & Bonta (2010) focuses on several factors related to an individual's circumstances as well as his or her own characteristics, which influence behavior (Andrews & Bonta, 2010; Hoge & Andrews, 2011). The GPCSL perspective embraces

the notion that there are core aspects of personality, which can be influenced by biological factors and through the development process (Andrews & Bonta, 2010). People are influenced by personal, interpersonal and community interactions during development. If a person's interactions are supportive of criminal behavior, likely, his or her criminal behavior can be understood. Unlike theories of criminal behavior that have more social orientations, this explanation of criminal behavior focuses on the existence of factors that are predictors of criminal conduct, which impact and explain individual differences in criminal behavior (Andrews & Bonta, 2010). The intent of this orientation is to provide assistance in the development of interventions that will reduce antisocial behavior and lower the costs of processing within the justice system (Andrews & Bonta, 2010). Through assessment that identifies individuals that are higher risk for antisocial behaviors, and understanding how the various factors that are associated with criminal behavior interact for that individual, practitioners can implement effective direct interventions that target the individual's needs related to his or her criminal behavior in order to reduce it (Hoge & Andrews, 2011).

To explain individual difference in crime, Andrews and Bonta (2010) outline their identified major correlates of individual criminal behavior in eight categories. Table 1 shows the eight risk need factors are termed "The Central Eight" (Andrews & Bonta, 2010, p. 58). Organization of the risk need factors allows for the assessment of an individual in determining his or her propensity for continued offense. This assists practitioners in setting intermediate target goals for service delivery that will impact the dynamic criminogenic needs of the individual in an effort to reduce their antisocial behavior (Andrews & Bonta, 2010).

Table 1.

*Central Eight Risk Need Factors*

Risk Need Factor	Description
History of Antisocial Behavior	Early initiation of antisocial activity and the number of times involved in such activities in various settings
Antisocial Personality Pattern	Indications of impulsivity, difficulty controlling anger or problem solving
Antisocial Cognition	Attitudes, justifications and feelings of self that are favorable toward antisocial activity
Antisocial Associates	Being associated with others that support antisocial behaviors; also, isolation from those who are not pro-criminal
Family/Marital Circumstances	Lack of warm, positive relationships with caregivers and deficits in monitoring and supervision
School/Work	Low performance and rewards from involvement in school/work, lack of quality ties to school and the staff/students/coworkers
Leisure/Recreation	Low participation and enjoyment in involvement in prosocial activities
Substance Abuse	Problems with alcohol/drugs, higher risk is associated with current involvement

Adapted from Andrews & Bonta, 2010 p. 58

Andrews, Bonta, and Hoge (1990) take this theoretical base to an applied level through the introduction of the Risk Need Responsivity (RNR) model, a framework for effective correctional assessment and rehabilitation, presented in 1990. If an individual's characteristics

and circumstances interact in ways that foster rewards for an individual for antisocial behavior, he or she is more likely to continue criminal behavior. The RNR model is intended to support efforts to enhance an individual's rewards for noncriminal behaviors through alternate ways and reduce his or her propensity for continued criminal behavior (Andrews & Bonta, 2010). Three core principles of RNR are the Risk Principle, Need Principle, and Responsivity Principle.

The Risk Principle indicates that cases should be classified based on risk for continued offending behavior and that service resources should be targeted toward individuals that are classified as being higher risk. This principle assumes that one can predict criminal behavior, and that interventions should match risk level (Andrews & Bonta, 2010). The GPCSL and organization of the Central Eight risk need factors provide the map that will ensure that assessment practices effectively evaluate an individual's criminogenic needs in order to determine who to target and how to provide direct human services to address those needs (Hoge & Andrews, 2011).

The Need Principle focuses on the targets of services. Risk need factors that are dynamic (changeable) and if addressed, can reduce the individual's likelihood of continuing criminal behavior, are to be targeted for services (Andrews, Bonta & Hoge, 1990; Andrews & Bonta, 2010). The RNR model's focus is correctional practices that will reduce and prevent continued criminal behavior, so a distinction is made that the targets of direct services, and the intermediate case and service goals for an individual offender should focus on addressing criminogenic needs (Andrews & Bonta, 2010). Andrews & Bonta (2010) indicate that criminogenic needs are represented by the Central Eight.

The Responsivity Principle can be broken into two parts. The first is General Responsivity. This principle directs practitioners to provide direct services in a style that will match the offender's abilities and learning, advocating for treatments that are based in cognitive behavioral and social learning (Andrews & Bonta, 2010). The second part of the Responsivity Principle is Specific Responsivity, which refers to an individual's specific characteristics and circumstances that are not part of the Central Eight, but may be relevant to an individual's motivation, amenability to a style of treatment (Andrews & Bonta, 2010; Hoge & Andrews, 2011). Some examples of responsivity factors may be learning disabilities and anxiety (Hoge & Andrews, 2011). Hoge & Andrews (2011) also indicate that some responsivity factors, like a particular interest, or access to a positive mentor, can serve as a protective factor, factors that can mitigate the impact of criminogenic needs.

This theoretical base and applied model, informed the organization of the Youth Level of Service/Case Management Inventory assessment of risk and need (Hoge & Andrews, 2011). The authors state that "...the YLS/CMI 2.0 provides a broad and comprehensive survey of all the risk, need, and responsivity factors that affect youth crime and responses to interventions.... Further, the YLS/CMI 2.0 is structured to encourage a direct linking of these factors with case planning" (Hoge & Andrews, 2011, p. 2). The authors of the YLS/CMI specifically feature the principles of Risk, Need, Responsivity and the Professional Override in their user manual for those administering the assessment (Hoge & Andrews, 2011).



## **Youth Level of Service/Case Management Inventory 2.0 (YLS/CMI)**

The YLS/CMI is a risk needs assessment instrument for youth ages 12-18. Originally developed for adult offender risk assessment, the first modification of the adult Level of Service Inventory instrument was made in 1984 and called the Youth Level of Service Inventory, a checklist consisting of over 100 risk need factors. The YLS/CMI, developed in 2002, narrowed these risk need factors into a list of 42 factors that were most strongly associated with criminal activity among adolescents age 12-17 while also incorporating responsivity, override and case planning. Version 2.0 updated the YLS/CMI to include a larger age range, new cutoff scores for the categorization of risk among youth in various settings and of each gender, and it included additional responsivity factors. In order to address some criticism of the instrument and the underlying theory as it relates to gender, authors incorporated gender specific responsivity factors into version 2.0 of their instrument (Hoge & Andrews, 2011).

In 1996, the cutoffs for classifying offenders were normed using a sample of 263 12-17-year-old offenders in Canada who were both custodial and community based. This sample provided the initial risk cutoff scores for the assessment. The instrument uses the categories of low, moderate, high, and very high to categorize total risk needs scores. Hoge and Andrews (2011) updated the sample, integrating agencies in the United States, and included 12,798 offenders ages 12-18 years old. This population was also community and custodial based. The sample was collected from 2001 to 2008 and expanded the instrument's ability to provide risk classifications in custodial and community settings for female and male offenders. The authors' new sample was 69% of the population studied was White, 15.4% African American, 6.4% Latino, 1.2% Asian, 3.9% Aboriginal, and 3.9% Other/Multiracial. The original sample specifies that the population studied consisted of rural and urban youth, but this distinction is not made in

the demographics of the newest sample of the United States' youth. Instead, the authors indicate that 2.2% of the sample is from the Northeast, 24% from the Midwest, 40.3% from the South, and 6.5% from the West (Hoge & Andrews, 2011).

The assessment process and scoring is intended to be completed through the retrieval of information about the youth through use of several avenues. These information gathering methods include interviews with the youth and caregivers, other professionals who have been in contact with the youth, additional testing results, and the use of official records from school, police, and courts. Hoge and Andrews (2011) also provide a semi-structured interview guide for assisting practitioners in obtaining information from youth and parents. In order to assist in reliable scoring, the authors provide training and specific descriptions for determining if a risk need factor should be affirmed on the instrument. The scoring of the instruments is a checklist format. The 42 factors are organized within eight domains, and are scored in a checklist fashion with sub-domain total scores and a final total risk need score. These scores are categorized based on score ranges specified by the instrument. The eight subdomains reflect the Central Eight factors described in the RNR model. The YLS/CMI 2.0 labels for these domains are listed in Table 2. Following an assessment of the criminogenic risk needs of the individual, the instrument has a checklist of responsivity factors and a final assessment that allows for professional override of a risk need classification. Last, there is a case management portion, which provides a link between the scoring and the individual's service plan.

Table 2.

*YLS/CMI 2.0 Risk Need Domains*

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Prior and Current Offenses/Dispositions	Substance Abuse
Family Circumstances/Parenting	Leisure/Recreation
Education/Employment	Personality/Behavior
Peer Relations	Attitudes/Orientation

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Adapted from Hoge & Andrews, 2011 p. 6

The intent of the research project is to utilize one county's YLS/CMI 2.0 scores and available recidivism information to evaluate the assessment's ability to accurately predict continued criminal behavior. The YLS/CMI 2.0 authors encourage local validation of the instrument to ensure that decisions are made based on assessments that assist in correctly identifying the individuals who are at high risk for continued offense in order to appropriately match them to services that will address their criminogenic need and reduce their propensity for continued antisocial behavior using targeted services (Hoge, 2002). This will expand the existing research related to risk assessment with a unique population. The population sampled is in a rural Michigan geographic location, which provides an examination of an under researched area in a State that currently does not have statewide policies related to the assessment and matching of services based on the principles of Risk, Need and Responsivity. The first step in addressing these research gaps are to assess whether the use of a standardized off the shelf risk needs assessment is valid.

## **Chapter 2: Literature Review**

### **What is Risk Assessment**

For the purposes of this study, the term risk is used to describe the propensity of an individual to continue criminal behavior (Latessa & Lovins, 2010). Risk assessments are tools used for determining risk. Assessment of risk can be clinical in nature, based on the assessor's conclusions about an individual's likelihood to continue to offend, or it can be determined through actuarial instruments that formulate a risk level or score that indicates their probability for re-offense (Mulvey & Iselin, 2008). Actuarial risk assessment instruments create a standardized system for assessing risk and are generally more accurate in predicting risk than clinical judgement (Latessa & Lovins, 2010).

Risk assessment instruments utilize factors that are known to relate to criminal offending and combine them into a model that, through actuarial prediction, determines the likelihood that a person will continue criminal behavior (Khanna et. al, 2014; Slobogin, 2013). The factors utilized in risk assessment instruments to make this prediction of risk vary by tool and can include static or dynamic risk and protective factors (Slobogin, 2013). Static risk factors are historical or other unchangeable factors that increase the likelihood that someone will engage in criminal conduct. Dynamic risk factors, also referred to as criminogenic needs, increase the likelihood that someone will engage in criminal conduct but are factors that can be changed. Protective factors are considered to be strengths, or factors that buffer against or reduce a person's tendency toward criminal behavior (Andrews & Bonta, 2010).

Appropriately assessing an offender's risk for continued criminal behavior is a foundational component of adhering to the risk principle within the Risk Need Responsivity (RNR) model framework (Latessa & Lovins, 2010). Best practice in case management under

this framework includes establishing an offender's level of risk for continued criminal behavior and identification of criminogenic needs, which can be addressed through appropriate interventions (Vincent et. al, 2012). The assessment process assists practitioners in determining who to target for more intensive interventions because they are more likely to continue criminal offending, and who is unlikely to reoffend and may be more appropriately diverted from intensive interventions, or the criminal justice system altogether (Taxman & Caudy, 2015; Hoge, 2012). Through accurate identification of risk and protective factors, and the grouping of individuals into risk levels, practitioners can utilize the information to guide their supervision and match an offender's risks and needs to interventions that will assist the individual in addressing dynamic risk factors while enhancing or utilizing protective factors (Andrews & Bonta, 2010; Slobogin, 2013). Risk needs assessments that incorporate dynamic factors, the assessment of risk and needs throughout an individual's treatment and supervision can assist in evaluating the success of an offender's treatment plan on impacting the individual's probability for continued offending (Slobogin, 2013).

Though risk needs assessments are recommended for use in guiding decisions, supervision and treatment of juveniles, there are limits to their implementation. Risk assessment is not recommended for legal decisions (Vincent, Guy & Grisso; 2012). The spirit of the assessment process is to adhere to the risk principle of the RNR framework, and to more efficiently and effectively identify where to place resources, not use answers against the offender for legal purposes (NCJFCJ, 2005). Slobogin (2013) recommends that assessments be completed throughout a case's involvement with the justice system and not only as a tool to be used for decisions at the beginning of a case. Risk needs assessments are also not intended to replace more comprehensive assessments, but rather to be used along with further assessment of

an individual in areas such as substance use, mental health, or cognitive or developmental concerns (Latessa & Lovins, 2010). Several authors have highlighted the importance of training and organizational integration of practices associated with the use of assessment and subsequent case planning in order to match appropriate interventions with the information provide by assessment (Latessa & Lovins, 2010; Miller & Maloney, 2013; Vincent et. al, 2012; Vincent, Guy & Grisso, 2012). Risk needs assessment alone is only part of a greater picture, and a piece of a larger model of effective correctional practice.

### **The Potential Benefits of Risk Needs Assessment**

Using and integrating risk needs assessments into practice has shown several promising outcomes. Courts are tasked with the job of meeting the needs and demands of many interests. The system must appear to have an authoritative role as the system that delivers sanctions and addresses public safety, while also rehabilitating and changing offenders. While delivering on systemic goals, the court system also should consider the individual offender (Mulvey & Iselin, 2008). Incorporation of risk needs assessment has the potential to assist agencies in effective and efficient use of resources and development of programs and practices that deliver desired outcomes for systems and individuals (Latessa & Lovins, 2010; Vincent et al., 2012). At the organizational level, a good assessment and adherence to the Risk Need Responsivity principles could address public safety through accurate identification of higher risk offenders to target with interventions and supervision that will yield increased safety by reducing individual risk and ultimately, offending behaviors (Andrews, Bonta & Wormith, 2006). At the individual level, appropriate use of valid risk needs assessments and subsequent matching of individual criminogenic needs with appropriate services will serve to assist in reducing the individual's risk

for continued criminal behavior, which has the potential to improve one's quality of life and remain out of the formal control of criminal justice system (Andrews & Bonta, 2010).

The juvenile justice system has been criticized for its conflicting goals and practices, raising concerns about legitimacy of the system and its practices. The juvenile justice system is not exempt from the general criticisms of the criminal justice system related to race and gender bias and the extra-legal factors that impact decisions (D'Angelo, Brown, & Strozewsk, 2013; Shook & Sarri, 2007). Because much of the practices of the juvenile justice system are subject to discretion of professionals in various roles and occur within a community and political culture, decisions related to the handling and processing juveniles in the system are vulnerable to biases of the culture, professionals and organizations (Cooley, 2011; D'Angelo, Brown & Strozewski, 2013; Lindner, 2008; Mulvey & Iselin, 2008). Factors outside of statute and official policy related to a handling of a case impact decisions. D'Angelo, Brown and Strozewsk (2013) found that referral sources and context may impact decision making.

Disproportionate minority contact has been a priority concern and legitimacy issue at several levels of the criminal justice system including juvenile justice. In a 2013 nation-wide study, it was found that white youth were more likely to have a case handled informally than youth from other racial groups. (Hockenberry & Puzanchera, 2015). African American youth are most likely to be placed out of the home than youth from other racial groups (Hockenberry & Puzanchera, 2015). Blackmon, Cain & Livermore (2015) found that poverty predicted harsher dispositions. The creation and use standardized tools that accurately assess risk and criminogenic needs to guide decisions in ways that can potentially reduce the influence of bias, politics, and conflicting demands while still promoting effective rehabilitation and public safety

may address some of the legitimacy concerns of the system (Mulvey & Iselin, 2008; Shook & Sarri, 2007).

At the intake level of the juvenile justice system, several decision points and opportunities for discretion of the professionals determine which juveniles are filtered out of the system and to what degree they are processed into the system (Hoge, 2012; Lindner, 2008; Young et. al, 2006). These practices are subject to criticism because there are few standard practices associated with how these decisions are made (Linder, 2008). While the delinquent act itself may be the result of risk need factors present for an individual, court processing in itself may also be criminogenic in nature (Caudill et al., 2013; Myers & Farrell, 2008; Petittclerc et. al, 2013). Decision points and the factors that assist in making decisions as juveniles enter and are processed further into the criminal justice system is therefore an important consideration for professionals who are concerned with preventing continued offending (Caudill et. al, 2013).

The potential for risk needs assessments to assist practitioners in identifying low risk individuals that are most appropriate for diversion options is one of these instrument's potential strengths (Hoge, 2012; Latessa & Lovins, 2010; Onifade et. al, 2008a). Intervention research has shown that individuals who are lower risk do not benefit from intensive supervision and intervention services and these interventions can even increase their recidivism (Lipsey et. al, 2010). Because this group is least likely to continue criminal behavior, intensive programming and intervention with these individuals may not only be detrimental, but is also not an efficient use of organizational resources. Resources can be focused toward individuals that are higher risk and require intensive interventions and risk management practices in order to prevent continued offending (Latessa & Lovins, 2010).



Though appropriate use of risk needs assessment may be beneficial to the organization, public safety and individual, there are cultural considerations that may impact the implementation into organizational practice. Use of risk needs assessment is most suited for juvenile justice systems that have a rehabilitative focus (Slobogin, 2013). The psychological roots of risk assessment tools imply an element of individualized treatment and intervention that focuses on future crime prevention for that individual (Andrews & Bonta, 2010). Risk needs assessment is not designed or intended for the purposes of punishment, but rather for the management of risk and the development of case plans that will achieve public safety while facilitating reduction of an individual's risk to continue to offend (Andrews & Bonta, 2010; Slobogin, 2013).

### **Juvenile Court History**

The development of the juvenile justice system was and continues to be an evolutionary process. Because formalized responses to crime have not occurred in a vacuum, the social and cultural context of practices is important in understanding the role that risk needs assessments have within this institution. In the historical context of juvenile justice in the United States, values of rehabilitation and punishment have fallen in and out of favor with popular demands for policy and practice at rotating periods through time. However, the ever-present tension created by these philosophies has also created a place to weave assessment of risk and need into the current version of the juvenile justice system within the current policy environment.

Historically, rehabilitative rhetoric was at the core of the founding of the juvenile justice system (Myers & Farrell, 2008). Painting youth as fundamentally different from adults, elite philanthropists articulated and argued that society had an obligation to change a young offender while protecting the public and intervening in behaviors deemed threatening to social order.

During the 19th century, concern grew among society's elites as the country's social cultural landscape rapidly began to change through the influx of immigrants and urbanization. The initial efforts to address behaviors developed into a public effort to reform juveniles exhibiting undesirable behaviors. In New York in 1817, the Society for the Prevention of Pauperism formed and became the root for many growing public responses to juvenile delinquency. By the early 1820's these efforts melded into the public sector as the efforts formalized, and in 1825 the first House of Refuge, an institutional reformatory opened its doors (Krisberg, 2005).

Over the next several decades, formalized community efforts and responses to juvenile delinquency continued to evolve and gain in popularity. By the mid-1800's, Boston had developed a system of community supervision and prevention of juvenile delinquency which included a rehabilitative effort to place youth in jobs and provide basic needs (Krisberg, 2005). The first juvenile court was formed in Chicago in 1899 (Krisberg, 2005; Soulier & Scott, 2010). This was the first government based court to create a separate system for juveniles, and highlights the era's recognition and desire to distinguish and treat juveniles as separate and unique from adult criminal offenders (Krisberg, 2005; Soulier & Scott, 2010). Popularity of the idea of a separate formalized system and court for juveniles gained favor throughout the country, and juvenile courts were found in 25 states by 1925. Juvenile courts were promoted by advocates of social reform, the wealthy, but also fueled by a growing trend and support in the social science community toward a study of delinquency through social and biological approaches (Krisberg, 2005).

With the development of the juvenile court systems, so to developed the questions relating to the most effective interventions for reducing delinquency and addressing recidivism (Krisberg, 2005). Psychological researchers and theorists rose in philosophical favor as juveniles

were treated as individuals requiring guidance and treatment to rehabilitate (Krisberg, 2005). In 1909 William Healy contributed to the scientific question of the causes of delinquency and effective treatment through assessment of offenders using a social, psychological, and medical approach (Krisberg, 2005). Healy developed and advocated for individualized treatment plans and community based clinics for intervening with juvenile offenders (Krisberg, 2005; Soulier & Scott, 2010). With the interest of the social scientists in the assessment and treatment of juvenile offenders, and society's interest in ensuring their juvenile justice systems were effectively addressing juvenile behavioral concerns, a scientifically based rehabilitative approach within juvenile court systems fell into favor over missional or philanthropic drivers of policy and practice of the previous century.

The efforts of juvenile justice were pulled into a new direction through policy shifts related to several Supreme Court rulings in the mid-20th century, which addressed the constitutional rights of juveniles in the court system. *In re Gault* (1967), established that juvenile courts were separate from adult courts, but juveniles were entitled to due process rights. This resulted in a juvenile court system that more closely resembled the adult court system. While the new court rulings impacted structure and processing, the desire for a rehabilitative flavor for juvenile justice continued concurrently. In 1967 President Johnson appointed the Commission on Law Enforcement and the Administration of Justice which issued a report that examined rehabilitative and delinquency systems efforts (Soulier & Scott, 2010). The crime commission recommended concentration on juvenile work programs, counseling and diversion efforts for juveniles (President's Commission on Law Enforcement and the Administration of Justice, 1967). The goal of rehabilitation was positioned into a place of potential goal conflict with the judicial rulings that required a system that more closely resembled adult criminal

systems. Coupling these systemic conflicts with the growing cultural and political concerns and fear of crime at a national level, rehabilitation slowly began to compete more fiercely with the goals of public safety and punishment.

In 1968, Richard Nixon created a presidential campaign platform that painted himself as the candidate of law and order. This came shortly after significant social unrest related to the civil rights movement and the large baby boomer generation turning the age in which people are most active in crime (Jones & Mauer, 2013). Through rising crime rates and fear, a get tough on crime rhetoric appealed to the public and created a new environment for policy and practices for addressing crime. However, despite these shifts, the effort to maintain juveniles as a unique population continued. The government created and passed the Juvenile Justice and Delinquency Prevention Act of 1974, which called for the deinstitutionalization of status offenders and the separation of juveniles and adults in institutions (Soulier & Scott, 2010). However, in 1974 an influential article also was published in the field of criminal justice, which posited that little to nothing works in reform and rehabilitative correctional practices (Jones & Mauer, 2013; Martison, 1974). This literature assisted the get-tough politicians in leveraging their policies and catapulted the juvenile justice and broader criminal justice system into the punitive crime control era of criminal justice (Jones & Mauer, 2013; Krisberg, 2005).

As politicians competed to create policies that reflect their ability to apply social control, more youth were placed into the adult criminal justice system through waivers into adult court and incarceration rates of juveniles increased (Benekos & Merlo, 2008; Krisberg, 2005). As fear of crime increased, a picture of juvenile offenders as predatory offenders that are not amenable to rehabilitative efforts became the common lens in which to consider delinquency interventions (Borum, 2003). Harsh punishment and punitive responses became the popular model in which to

address juvenile delinquency (Myers & Farrell, 2008). Though an undercurrent of rehabilitation continued to exist through initiatives like the JJDPA and the continuance of separate juvenile court systems, the dominant philosophy related to addressing juvenile delinquency swung toward retributive policies and practices and a culture of control.

This climate reigned through the 1980's and 1990's. However, legislators, systemic players, and public opinion have begun to shift to incorporate rehabilitation with accountability (Merlo & Benekos, 2010). Lower crime rates, costly punitive policies and practices and new science about adolescent brain development have contributed to shifts in policy and practice (Merlo & Benekos, 2010). A movement toward evidence based practices and a change in rhetoric from tough on crime to smart on crime has marked the beginning decades of the 21st century. A shift back to local initiatives to keep juveniles in the home drove policy decisions back to practices that were based in social science research and evidence related to effective interventions (Bernstein, 2014). Supreme Court rulings regarding juvenile culpability including landmark cases such as (*Roper v. Simmons*, 2005); (*Graham v. Florida*, 2010); (*Miller v. Alabama*, 2012), recognize the developmental differences between adults and juveniles shifting the conversations back toward developmentally informed responses to juvenile delinquency (Bernstein, 2014). Applied approaches like the RNR model for correctional practices developed during the get-tough era provided the roadmap for fulfilling public safety and accountability demands while also recognizing effective rehabilitative practices, allowing the tension between the two goals to find a resolution that was not an all of one or another philosophy. Correctional theories that specifically address effective means of treating and supervising offenders were part of the systemic changes that began to emerge as one 21st century justice system trends (DeMichele, 2014).

Currently, the juvenile justice system has had a period of declining overall juvenile crime (Blitzman, 2015). Arrests of juveniles had a 37% decrease between 2003 and 2012 (Puzzanchera, 2014). The delinquency caseload lowered by 44% between 1997 and 2013. (Hockenberry & Puzzanchera, 2015). Approximately 1,058,500 juvenile delinquency cases were managed in the United States in 2013, with 55% being handled formally. Out of home placements at disposition have decreased 53% since 1997 (Hockenberry & Puzzanchera, 2015). However, the system has also seen an increase in referrals for status offenses, referrals from schools and social service systems, and an increase in mental health concerns (Blitzman, 2015).

There have been many changes to processing and decision making over the last 30 years. Because risk needs assessment instruments can assist courts in case planning and informed decision making, their re-emergence in the political and policy conversation of the juvenile justice system makes sense as systems continue to explore best practices in the post crime control era. The 21st century has marked an increase in the number of jurisdictions utilizing risk assessments and an increasing number of social scientists began to create and validate various assessment tools (Young et al., 2006). Because juvenile justice systems perform the dual role of change/rehabilitation agent and administrator of punishment and public safety, decision aids that assist in efficacy and efficiency became desirable (Shook, & Sarri, 2007).

Risk assessments are currently used to varying degrees across jurisdictions in the United States from entry points to parole in both the juvenile and adult criminal justice systems (Latessa & Lovins, 2010). Decisions based on the result of assessments include decisions regarding placement and release at intake (Bazemore, 1993; Latessa & Lovins, 2010). They are also used for dispositional recommendations regarding supervision in community corrections settings and programmatic treatment decisions, and on the back end at decision points regarding release and

parole (Latessa & Lovins, 2010). Appropriate assessment of risk using locally valid third and fourth generation assessment tools is considered to be a foundational element of evidence based correctional practice (Latessa & Lovins, 2010).

### **History of Risk Assessment in Practice and Policy**

Determining the risk factors associated with criminal offending and assessing an individual's risk to reoffend has its roots in the scientific inquiry that played a factor in juvenile justice practices to a greater or lesser extent throughout various points in the system's history. At the turn of the 20th century, reform schools and early juvenile courts used assessment to clinically assess a youth's perceived needs and risks for the purposes of rehabilitation and classification (Shook & Sarri, 2007; Soulier & Scott, 2010). This laid the foundation for the role of risk assessment in assisting juvenile justice systems in decision making (Soulier & Scott, 2010). Early prediction models attributed to the development of risk needs assessments include Burgess' 1928 assessment of factors that will predict parole violations, and the 1950 studies by Sheldon Glueck and Eleanor Glueck who determined that several factors from many disciplines explain delinquency (Burgess, 1928; Glueck & Glueck, 1968). In the middle of the 20th century the shift of the focus of juvenile justice policy makers was placed on due process and the constitutional rights of juveniles began a move away from the clinical and individual emphasis of assessing individual youth. De-emphasis of individualized approaches in system's practice continued into the crime control era of the mid 1970's through the 1990's (Shook & Sarri, 2007).

As the system continued to grow and become strained with punitive approaches, so to came the need for accurate ways of assessing a juvenile's risk for offense to assist in making decisions about supervision and placement (Shook & Sarri, 2007; Young et al., 2006). The juvenile justice system began to more closely resemble an adult court, and adult waivers and

punitive measures were increasingly used in response to young offenders (Soulie & Scott, 2010). There were 91% more waived cases in 1994 than there was in 1985 (Puzzanchera, Adams & Hockenberry, 2012). From 1985 to 1997, there was a 68% increase in the number of juvenile cases that were placed out of the home at for a disposition. The likelihood that a delinquency case would be formally processed in court increased from 49% to 58% for males and from 36% to 45% for females between 1985 and 2009 (Puzzanchera, Adams & Hockenberry, 2012). The consequences of decisions that emerged from this formalized and punitive system were high for those involved (Soulie & Scott, 2010). Dawkins and Sorensen (2015) found that juvenile incarceration predicted an increase in offending in a sample of offenders from state-level data that encompassed the years 1997 to 2011. Out of home placement for juvenile offenders average \$240.99 per day (Petteruti, Walsh, and Velázquez, 2009). There began a recognition of need for community based approaches that grew from these systemic factors (Borum, 2003).

The criminological work of academics continued through these various policy environments. Still in the height of the practical emphasis on enforcement and punitive responses, new theoretical approaches to assessing and responding effectively to criminal conduct were being developed. Andrews, Bonta, and Hoge (1990), introduced the principles of Risk Needs Responsivity (RNR) for effective correctional practice and treatment. This framework reintroduced the importance of individualized assessment, case planning and treatment that target the reduction of dynamic risk factors that correlate to antisocial behaviors in effectively reducing recidivism. By the turn of the 21st century structured individual assessment of risk fell back into favor as federal, state and local jurisdictions promoted and adopted the use



of risk assessment to guide decision making and address system strain (Borum, 2003, Brogan et al, 2015; Miller & Maloney, 2013).

### **The Evolution of Risk Assessment**

Four generations of risk assessment are recognized in the evolution risk assessment methods and tools (Andrews, Bonta & Wormith, 2006; Schwalbe, 2007; Young et al., 2006).

First generation risk assessments include a clinical judgement of an individual's level of risk for continued offense based on a professional intuition or experience, and unstructured assessment process (Miller & Maloney, 2013; Schwalbe, 2007, Young et al., 2006). Over time, tests of the predictive validity of clinical judgement have shown that clinical judgement assessment is less accurate in predicting future criminal behavior than the standardized risk assessment approaches developed in later models (Andrews & Bonta, 2010; Andrews, Bonta & Wormith, 2006).

Second generation assessments include standardized tools that use an actuarial approach to predict risk of continued criminal offending and classify offenders using static, or unchangeable risk factors (Andrews, Bonta, & Wormith, 2006; Miller & Maloney, 2013; Schwalbe, 2007).

While these tools are more accurate than their predecessors, they are weak in utility because they do not address dynamic risk factors that can be changed through appropriate interventions. Third generation assessments incorporate dynamic risk factors, called criminogenic needs, that are correlates of criminal offending (Andrews & Bonta, 2010). In addition, third generation assessments assist in the classification of offenders by risk and assist professionals in creating intervention plans that will impact risk for recidivism (Schwalbe, 2008). Currently, fourth generation risk assessment tools further work to enhance the predictive model of these instruments by incorporating a reassessment process and the integration of the dynamic factors

into an individual's case plan from the time of intake through the termination of the case (Andrews, Bonta & Wormith, 2006; Latessa & Lovins, 2010).

### **Utility of Risk Needs Assessments in Applied Settings**

#### **Predictive validity.**

A key component of risk assessment is its ability to predict and classify which individuals will continue to offend. If one is to incorporate the principles of Risk, Need and Responsivity appropriately, the instrument from which a risk classification is determined must be a valid predictor of risk. Actuarial risk needs assessments have been found to predict recidivism better than chance (Slobogin, 2013). They also offer better predictive validity than unstructured clinical assessment (Andrews & Bonta, 2010). There are two components that are important when considering the predictive validity of an assessment. First, the rate of false positives, an instrument predicting that an individual will commit a new offense but the individual does not continue to commit crime (Slobogin, 2013). A high rate of false positives is problematic because these individuals may be subject to unneeded supervision and interventions. Secondly, false negatives, or classifying an individual as a non-recidivist when in fact, they do go on to commit new crime is problematic for agencies because of the potential for these individuals to continue to offend (Andrews & Bonta, 2010).

Because the base rate of recidivism is often low, it is more difficult to identify offenders that will recidivate. For applied purposes, this is significant because accounting for more recidivists at the risk of still encompassing those that will not reoffend in interventions may be a preference for practitioners that are subject to the ramifications of providing too little surveillance and intervention and having offenders continue to victimize (Slobogin, 2013). This is in direct conflict with research that suggests that one of the values of risk needs assessment is

the identification of individuals that are unlikely to reoffend and can be diverted from intensive interventions or the system all together (Hoge, 2012; Onifade et. al, 2008a). While the actuarial risk needs assessment has shown to predict recidivism better than chance and clinical judgement, risk needs assessments are not perfect. It is important for local agencies using assessments to understand their assessment's strengths and limitations.

Several risk assessments have been subject to many tests of their validity and reliability across several jurisdictions (Schwalbe, 2007; Slobogin, 2013). Early validation studies often focused on predictive validity, while more recent tests have considered the ability of risk needs assessments to predict offending when additional variables are considered such as race, age, environmental context, exposure to abuse and neglect, and mental health diagnosis (Anderson et. al, 2016; Khanna et. al, 2014; Li et. al, 2015; Onifade et. al, 2014; Onifade & Campbell, 2009; Onifade et. al, 2011; Schwalbe, 2008; Tillyer & Vose, 2011). Developers of tools also encourage localized validation of risk needs assessment tools (Hoge, 2001). This testing over time allows professionals to better understand their populations and also better know how much importance should be given to the results of an assessment (Slobogin, 2013).

### **Subgroups.**

Risk assessments continue to be scrutinized for their applicability across various subgroups such as geography, race, gender, and their overall accuracy in explaining the risk for continued criminal offending (Olver, Stockdale & Wong, 2012; Slobogin, 2013). There is the potential for a risk assessment tool that creates a single risk score and risk category based on combining dynamic and static risks, to oversimplify an offender's reasons for criminal offending and the identification of the best avenues for effective treatment (Taxman & Caudy, 2015). Risk needs assessments do not necessarily differentiate between specific type of criminal offense, but

rather make a judgement about the risk to reoffend in general (Andrews, Bonta & Wormith, 2006; Latessa & Lovins, 2010; Slobogin, 2013). Adhering to the risk principle, has its limits in applicability as well. An assessment can categorize a person on their level of risk to reoffend, but this does not mean that all offenders in a specified category are similar (Slobogin, 2013). Combinations of risk factors may impact recidivism rates or responses to interventions (Onifade et. al, 2008b).

Social demographic variables also should be considered for their own potential unique contribution to the prediction of offense, and their impact on the validity of the assessment. An effective risk needs assessment should not serve as a proxy for a specific population and it should also maintain its predictive accuracy when other social variables are considered. Questions about whether a risk needs assessment instrument may be a substitution for demographic or static factors, thereby automatically placing certain subgroups at higher risk for continued offending, have also been considered by scholars (Slobogin, 2013). Studies of the predictive validity of various risk need assessment instruments have yielded mixed results once subgroups are factored in (Onifade et. al, 2014).

### *Adolescents.*

Though risk needs assessments are utilized in adult and juvenile populations, a concern with assessment instruments has been the system's use of them at one decision making point, which then impacts an individual for the duration of a case. Adolescents are unique because they are developmentally changing at a rapid pace (Slobogin, 2013). In third and fourth generation risk needs assessments, dynamic risk factors and evolutionary treatment and case management is incorporated into the individual assessment of risk (Andrews, Bonta & Wormith, 2006). Andrews, Bonta and Wormith (2006) state that reassessments should be more accurate in

assessing an offender's risk than their intake if the system is adhering to the RNR framework and evidence based principles for intervention. However, the system's practices often lag behind what social scientists recommend for implementation (Young et. al, 2006). Without systemic safeguards in place, the utility of the assessment process is compromised and may especially negatively impact younger offenders that are still changing and developing, and do so in short periods of time (Slobogin, 2013).

The age a person begins to exhibit delinquency behaviors has been studied in developmental theories of crime. Moffitt (1993) suggested that the individual factors that lead to delinquent behavior among youth who continue criminal activity through their life differ from youth who discontinue delinquent behaviors after adolescence. Youth who begin anti-social behaviors earlier in childhood and who exhibit those behaviors regularly, are more likely to offend over time. Cottle, Lee, and Heilbrun (2001) found that being referred to the juvenile justice system at an earlier age was predictive of recidivism. A study of juvenile delinquency cases in Florida revealed that youth who were referred to court before age 12 were three times more likely to be chronic offenders (Baglivio, 2014). In a study of juveniles in South Carolina, the youth referred to the juvenile justice department prior to the age of 14 were three times more likely to have a second referral than older youth who were referred to the juvenile justice department (Barrett, Katsiyannis & Zhang, 2010).

### ***Gender.***

Being male has been studied as a covariate of offending. Males make up more juvenile delinquency cases than females, however female cases have increased in recent years (Hockenberry & Puzanchera, 2015). In 2012, males accounted for 71% of all juvenile arrests and 81% of violent crime arrests (Puzanchera, 2014). Between 1985 and 2013, there was a 31%

increase in the number of female delinquency cases (Hockenberry & Puzzanhera, 2015). Cottle, Lee, and Heilbrun's 2001 meta-analysis of literature studying the predictors of recidivism found that being male was associated with recidivism. However, for risk needs assessment purposes, Andrews and Bonta (2010) argue that differences in gender are distinctive from predictive validity, and that the Central Eight risk factors are the factors most associated with criminal offending, and that these factors are associated with offending across genders. Yet, Andrews and Bonta (2010) do acknowledge that some gender specific additions to risk needs assessment may be beneficial for enhancing the assessment process for females.

### ***Race.***

Finding systemic solutions to disproportionate minority confinement and criminal justice system contact has been an objective of the Juvenile Justice and Delinquency Prevention Act (JJDP, 2002). While 17% of the juvenile population is African American, African American youth made up 52% of violent crime arrests (Puzzenhera, 2014). Cottle, Lee, and Heilbrun (2001) found that being in a minority racial group was a predictor of recidivism. African American youth are also more likely to be processed formally into court, and placed out of home after adjudication (Hockenberry & Puzzenhera, 2015). Practices in the juvenile justice system often involve discretion, and decisions are influenced by community, politics, organizations, and the workers who implement them (Cooley, 2011; D'Angelo, Brown & Strozewski, 2013; Lindner, 2008; Mulvey & Iselin, 2008). One argument for risk needs assessment is to ensure that individuals with higher risk to commit crime are identified appropriately and objectively based on defined risk factors, reducing bias (Latessa & Lovins, 2010). However, a counter point to this argument is that many of the risk factors on assessments perpetuate the labeling minority youth as higher risk because scores include processing factors such as prior arrests. Additionally, some

risk factors assessed that are intended to be individually dynamic, may more accurately reflect static macro level factors that cannot be addressed by the individual (Goddard & Myers, 2017).

### ***History of abuse and neglect.***

The role of childhood maltreatment in a juvenile's risk for recidivism, and actual delinquent behavior, is adding to the risk needs assessment and delinquency prediction research. Studies have found that a juvenile who has been the victim of abuse and neglect is associated with recidivism (Barrett et. al, 2014; Cottle, Lee & Heilbrun, 2001, Ryan, Williams & Courtney, 2013). In a sample of juveniles from Washington State, having been the victim of physical abuse or neglect was associated with general recidivism. For male juveniles in the population studied, being the victim of physical abuse or neglect was also associated with violent recidivism (van der Put & de Ruiter, 2016). Emerging research indicates that current risk needs assessment tools may have less predictive accuracy in categorizing the level of risk of offenders who were abused and/or neglected in childhood (Li et. al, 2015; Onifade et. al, 2014). In the Washington State sample, neglect remained a unique predictor of general recidivism, and physical abuse continued to be a predictor of recidivism for males after the additional of risk factors found in the risk needs assessment were added to the model (van der Put & de Ruiter, 2016).

### ***Special education.***

Studies have examined the link between learning disabilities and mental health diagnoses that can be associated with special education services to offending behaviors. Cottle, Lee and Heilbrun's (2001) meta-analysis of literature considering variables that are predictors of recidivism found history of being in special education classes, IQ, and lower achievement on standardized tests were predictors of recidivism. Rucklidge, McLean and Bateup's (2009) study of incarcerated youth in New Zealand found that reading comprehension was a unique predictor

of continued offending. In a study of Ohio youth, juveniles with special education classifications were more likely to have earlier involvement with the court and their probation lasted longer than youth without special education (Mallett, Stoddard-Dare, & Workman-Crewnshaw, 2011). Studies considering the validity of risk needs assessment among youth with mental health or other disabilities have mixed results. For example, Khanna et. al (2014) found the YLS/CMI did not effectively predict continued offending among youth with ADHD and Conduct Disorder. The risk needs assessment utilized for juvenile offenders in the State of Washington found the assessment used in that system to be appropriate for juveniles with and without intellectual disabilities (van der Put et. al, 2014).

#### **Geographic considerations.**

Local validation is promoted as an important part of the implementation of risk needs assessment tools at the organizational level (Hoge, 2001, Latessa & Lovins, 2010; NCJFCJ, 2005; Schwalbe, 2007). Local characteristics and the potential ways that risks manifest geographically may be lost in off the shelf and generalized risk needs assessment tools (Miller & Lin, 2007). In a study of the YLS/CMI, the predictive validity of the tool varied once neighborhood block types were considered (Onifade et. al, 2011). Miller & Lin (2007) found that a local tool was better able to predict continued offending among individuals than was an off the shelf tool, even after that tool was validated at a local level.

#### ***Rural settings.***

For jurisdictions that have chosen to implement risk needs assessments, the organizational, social and political environment is an important consideration in terms of their usefulness. While Shook & Sarri (2007) found that small or medium sized counties were more likely to implement risk needs assessments among a sample of Midwestern jurisdictions,



Cooley's (2011) study in North Carolina found that despite 98% compliance rate with the use of the tool, ideological beliefs about crime control may have impacted the actual decisions made about disposition in rural areas. Bond-Maupin & Maupin's (1998) findings suggest that rural areas rely on formal social controls. Schwalbe (2007) indicated that jurisdictions that value rehabilitation, prevention models and case planning will value off the shelf actuarial risk need assessment instruments.

Rural communities and jurisdictions present a unique set of challenges in implementation and evaluation of practices. There is a general gap in research and information in the implementation of evidenced based practices and risk assessment tools in rural areas. Bond-Maupin and Maupin (1998) highlight that beyond the lack of juvenile justice data in rural areas, there is little attention toward the population variations within rural communities. Population variations are commonly classified in terms of variables such as race, which may not be an applicable variable in the analysis of outcomes for some rural areas. Bond-Maupin & Maupin (1998) found that juvenile probation officers in a rural area did not perceive that they worked with a homogenous population though typical control variables that are measured may suggest otherwise. Weenink (2011) found that variances in rural culture exist and that there are considerations that must be accounted for within rural communities that may influence risk of offense. While many rural communities may have the benefit of increased social organization, lower delinquency rates, and increased participation in community based activities, these factors may not influence propensity for criminal offending in the same way that it does in more densely populated areas.

Structurally there are several challenges to implementation of evidence based practices in rural jurisdictions. Shook & Sarri (2007) also found poor implementation, funding and training

impacted utility of assessments as did professional perceptions about the tool's usefulness and time it takes to complete tools as compared to caseload pressures. Reliance on third party agencies to implement services and interventions is prevalent in rural justice jurisdictions, which creates a challenge related to control of interventions available and the way in which they are implemented (Bond-Maupin & Maupin, 1998; Rocque et. al, 2014). It can also be difficult to make standard practices in jurisdictions where a small number of individuals are being processed and referred to programming, funding limits are of concern, and there are often long travel distances for clients and court systems to take advantage of services (Rocque et. al, 2014). These structural realities have the potential to diminish the validity and utility of risk assessment administration in smaller, rural jurisdictions.

The potentially unique organizational and social nature of rural jurisdictions and their communities highlight the importance of local validation of risk needs assessment. In a smaller and more individualized organization that may be more reliant on third party treatment interventions outside of their control, a jurisdiction may benefit from the ability to advocate for effective services based on needs identified in risk needs assessments. Additionally, in community and organizational cultures that may emphasize the role of formal social controls as it relates to dealing with crime and offenders, gaining an accurate understanding offender risks and needs through a locally validated risk needs assessment tool may assist with implementation barriers to best practices, while also allowing systems to target limited resources effectively.

## **Youth Level of Service/Case Management Inventory 2.0**

### **Predictive validity.**

The Youth Level of Service/Case Management Inventory has been the subject of a wide array of validation studies (Olver, Stockade & Wormith, 2009; Schwalbe, 2007). The initial

validation for the YLS/CMI included 263 youthful Canadian offenders ages 12-17 (Hoge & Andrews, 2011). Later versions of the instrument and a subsequent validation study included 12,798 juvenile offenders ages 12-18 (Hoge & Andrews, 2011). Meta-analysis of juvenile risk assessments found that, overall, the YLS/CMI risk score predicts recidivism over multiple studies and across genders (Schwalbe, 2007; Schwalbe, 2008). However, results also indicated that there was a wide variability in the strength of the prediction across multiple studies (Schwalbe, 2007).

Despite the claim that the YLS/CMI is a valid predictor of general recidivism across gender, there have been criticisms of the instrument and the foundational perspective of GPCSL and RNR in which the instrument is based. One criticism challenges the gender neutrality of the instrument and its underlying theory. Hoge and Andrews (2011) implemented gender specific adjustments to overall risk score ranges and categories on the YLS/CMI in response to criticism and are available in the version 2.0 of their instrument. However, risk need factors that comprise the total risk score in the instrument for males and females remain the same.

In the literature reviewed, gender is addressed in several studies of the predictive validity of the YLS/CMI. In a 2008 meta-analysis, Schwalbe found that risk assessments, including the YLS/CMI demonstrated predictive validity across genders. These results were affirmed in Olver, Stockade and Warmth's (2009) meta-analysis and in later studies (Olver, Stockade & Wong, 2012; Vaswani & Merone, 2013; Vitopoulos, Peterson-Badali & Skilling, 2012). Several studies have found variation in the predictive validity of the YLS/CMI for males and females. Barnes et al.'s (2016) study supported Schwalbe's 2008 findings but the study results did reveal that gender was also a significant predictor of recidivism. Onifade, Davidson and Campbell (2009) found that the YLS/CMI predicted recidivism across gender, but found it did so to varying degrees.

However, in this study, the YLS/CMI's prediction of recidivism was best among a subpopulation of white female juvenile offenders and poorest among African American males. Bechtel, Lowenkamp & Latessa's (2007) study found that the total risk scores of white females in institutional settings, and all females that were assessed in a community based settings did not predict re-offense. Schmidt, Campbell & Houlding (2011), also found the YLS/CMI to be a weaker predictor of recidivism for females than for males.

The creators of the YLS/CMI promote the tool as an assessment that evaluates risk for general recidivism and does not differentiate by the type of crime that is likely to be committed (Hoge & Andrews, 2011). However, several researchers have attempted to measure the ability of the YLS/CMI to predict type of crime or severity and have found mixed results. Some studies have found the YLS/CMI to be a significant predictor of both violent and non-violent recidivism (Olver, Stockdale & Wormith, 2009; Schmidt, Hoge & Gomes, 2005). A study performed by Welsh and colleagues (2008) did not find these results and concluded that the YLS/CMI was not a good predictor of general recidivism. Looking beyond recidivism in the community, Holsinger, Lowenkamp & Latessa (2006) studied the YLS/CMI score as it related to the type of institutional misconduct exhibited in a correctional setting and found that the instrument was a predictor of this type of misconduct. Recent research has examined the ability of the YLS/CMI to predict future truancy and predict future offending among a population referred to the juvenile justice system for truancy. Among this population, the YLS/CMI predicted overall future delinquency petitions but did not predict future truancy petitions (Anderson et. al, 2016).

Several studies compare the predictive validity between risk needs assessment instruments and test whether one instrument has incremental validity over another. Commonly, the YLS/CMI is tested in conjunction with the PCL:YV (Psychopathology Checklist: Youth

Version) and SAVRY (Structured Assessment of Violence Risk in Youth) (Catchpole & Gretton, 2003; Hilterman, Nicholls & van Nieuwehuizen, 2014; Schmidt, Campbell & Houlding, 2011, Welsh et al., 2008). The YLS/CMI had mixed results in its ability to predict recidivism compared to the SAVRY and PCL:YV. Catchpole and Gretton (2003) found predictive accuracy in each of the three instruments. The PCL:YV and SAVRY had more predictive accuracy than the YLS/CMI in samples studied by Welsh and colleagues (2008) and Schmidt, Campbell and Houlding (2011). However, Hilterman, Nicholls, and van Nieuwenhuizen (2014) found that the PCL:YV did not have incremental validity over the SAVRY and YLS/CMI.

Validation studies of the YLS/CMI have been completed mostly in the United States and Canada, though the tool has been utilized and adapted to populations outside of North America. A study of the Australian version of the YLS/CMI found that an overall higher risk score was associated with recidivism (McGrath & Thompson, 2012). Similarly, a study in Spain found that the YLS/CMI score was associated with continued offending (Hilterman, Nicholls, & van Nieuwenhuizen, 2014). In the United Kingdom, the instrument significantly predicted risk of re-offense overall, but with higher levels of low risk offenders reoffending than what was expected (Vaswani & Merone, 2013). Each of these studies did find that the instrument demonstrated predictive validity, but did not account for the total variance in recidivism. Additionally, the YLS/CMI has historically been a better predictor of recidivism in Canadian populations (Olver, Stockdale & Wormith, 2009). Though several studies in the United States and elsewhere have found the YLS/CMI to be a significant predictor of recidivism, there may be cultural or systemic reasons that it performs better with Canadian populations (Olver, Stockdale & Wormith, 2009).

An additional area of interest among those considering the predictive validity of the YLS/CMI is the predictive accuracy of the tools across levels of risk. Several studies examine

the ability of risk needs assessment's classification system to provide useful information about propensity to reoffend or potential commission of other types of violations (Schmidt, Hoge & Gomes, 2005; Onifade et. al, 2008a; Vaswani & Merone, 2013). The risk principle contends that resources and direct service delivery should be focused on youth classified in higher risk categories while giving lower risk youth minimal processing, contact and intervention in the juvenile justice system (Andrews & Bonta, 2010). If risk needs assessments can appropriately identify the high-risk youth that will commit larger numbers of offenses, they will provide a map for effectively directing resources using the RNR model. Appropriately classifying low risk youth provides opportunities for systems to consider diversion options that may ensure that lower risk youth are not mixed with higher risk youth, which can have a criminogenic effect on the lower risk populations (Andrews & Bonta, 2010; Hoge, 2012).

Schmidt, Hoge and Gomes (2005) found that the YLS/CMI risk categories were able to differentiate the youth that would go on to commit serious offenses, more offenses, and reoffend within a shorter period of time. Onifade et. al (2008a)'s study of a Midwest juvenile offender population found that the YLS/CMI had more predictive validity in the lower risk levels and dropped below chance once the risk score rose above a cumulative score of 16. The opposite results occurred in a sample from the United Kingdom as the YLS/CMI had an unexpected number of recidivists among juveniles classified in lower risk categories (Vaswani & Merone, 2013). Holsinger, Lowenkamp and Latessa's (2006) examination of institutional misconduct, found that high risk category classification was associated with higher rates of misconduct. Taking the issue of risk categories further, some researchers have explored whether there are distinct risk profiles, or subdomain scores within the risk categories that impact the ability to

predict recidivism in order to consider additional explanations for variances within risk levels (Anderson et al., 2016; Onifade et. al 2008b).

Risk assessments have the potential of reducing the impact of bias in decision making through structuring and standardizing some of the judgement process when determining who is most at risk for continued offending (Onifade, Davidson & Campbell, 2009). Onifade, Davidson & Campbell's (2009) study sampled 968 youth to examine the predictive validity of the YLS/CMI by race and by gender. Specifically looking at White and African American race subgroups and additionally gender, the study found that the YLS/CMI performed best for White females, and poorest for African American males in that sample. Overall, the assessment was a valid predictor of continued offending, though to varying degrees among the subgroups.

Recent studies continue to seek more information to examine and explain other contributing factors to recidivism that are not explained by the risk assessment. Childhood maltreatment and its relationships with continued offending is emerging as a factor that may not be well explained by the YLS/CMI (Li et. al, 2015; Onifade et al., 2014). Khanna, Shaw, Dolan and Lennox (2014) studied the predictive validity of the YLS/CMI among youth with ADHD and Conduct Disorder diagnosis and found that the predictive validity of the YLS/CMI differed among youth with Conduct Disorder only and those with a diagnosis of Conduct Disorder and ADHD. Risk scores for youth with only a diagnosis of Conduct Disorder showed predictive validity. Taking into consideration the dynamic nature of risk factors among adolescents, Barnes et. al's (2016) examined the YLS/CMI ability of initial and exit points to predict recidivism finding that the exit risk scores of the sample had predictive validity and the initial risk scores did not. Additionally, the study found that a greater change in scores between initial and exit score demonstrated predictive validity (Barnes et al., 2016).

### **Methodological limitations.**

Several limits have been cited in the research related to risk needs assessment. Studies are often conducted retrospectively through file review, which limits the researcher to the information available and leaves data vulnerable to collection inconsistencies (Catchpole & Gretton, 2003). Other studies cite concerns with small sample size (Catchpole & Gretton, 2003; Schmidt, Hoge & Gomes; 2005, Holisnger, Lowenkamp & Latessa, 2006; Hilterman, Nicholls & van Nieuwenhuizen, 2014). Several authors recognize that the use of official data to measure continued offending does not necessarily reflect actual criminal behavior, rather it represents those that come to the attention of the criminal justice system (Barnes et. al, 2016; Olver, Stockdale & Wong, 2009; Schmidt, Campbell & Houlding, 2011; Welsh et al, 2008). Time frames used to measure recidivism and the lack of information related to continual assessment over the life of a case are also highlighted as methodological limits to several studies of predictive validity (Barnes et. al, 2016; Bechtel, Lowenkamp & Latessa, 2007; Catchpole & Gretton, 2003; McGrath & Thompson, 2012; Olver, Stockdale & Wong, 2009). Another methodological concern relates to the referral source of the populations studied. Information is often obtained from populations that can be captured because they were referred to a specific program or institution by the juvenile court; this may limit the variety of youth and risk scores that could be measured (Schmidt, Hoge & Gomes, 2005; Welsh et al, 2008).

### ***Design critiques.***

Beyond limits to the data collection several authors have cited concerns with the creation of the assessments themselves. Instruments like the YLS/CMI are designed to provide a cumulative risk score that places the youth in a category of risk for continued offending by adding the sum of the total risk need factors found in order to determine the most appropriate



individuals to target for intervention. Taxman & Caudy (2015) and Slobogin (2013) raise the question of creating overall risk categories and scores. Without consideration of specific groupings of risk factors and examining their interaction and their relationship with continued offending, the authors caution that one may oversimplify the question of risk. Risk factors and cumulative scores also have the potential to represent another variable such as age or race (Slobogin, 2013). Onifade and colleagues (2008b) used cluster analysis of risk factors to attempt to address this gap in research, and found that clusters of offenders with similar risk factors did occur within risk levels and that these clusters did impact the degree of predictive validity of the YLS/CMI.

The YLS/CMI has been critiqued for its focus on dynamic risk factors, which may be only useful in assessing shorter term risk for recidivism (Li et. al, 2015, Schmidt, Campbell & Houlding, 2011). Indeed, the developers of the assessment also indicate that the instrument is intended to be updated every six months, which reaffirms that there may be some limits to its usefulness in predicting an offender's propensity for crime in the more distant future. This also speaks to the limits related to studying prediction among adolescents, which are a dynamic population developmentally (Slobogin, 2013). However, this criticism is met with some pause because the underlying theories from which the instrument is based specifically indicate that the assessment of risk is intended to identify intermediate goals that address criminogenic needs, which should be re-evaluated throughout the life of the case and follow up periods of evaluation related to recidivism should be intermediate in nature (Andrews & Bonta, 2010). Use of an initial risk score, as is commonly practiced, to determine if the assessment effectively predicts continued offending, also fails to factor in the interventions that may have occurred between the initial assessment and a new offense (Barnes et. al, 2016). While the authors of the YLS/CMI

recommend that an individual's risk needs assessment be updated at least every six months, few studies were found that address the intended dynamic nature of case development, risk scores over time, and their relationship with continued offending. A recent study attempting to explore this underdeveloped area of research found that exit scores and the change in risk scores was related to recidivism after the conclusion of supervision by the Court (Barnes et. al, 2016).

### **Threats to Validity and Reliability: Systemic Considerations**

Appropriate implementation of fourth generation assessments includes conducting an initial assessment to fidelity, regular reassessment, matching effective services and supervision practice to address criminogenic needs, and targeting moderate to high risk offenders for services (Andrews, Bonta & Wormith, 2006; Miller & Maloney, 2013; Taxman, 2013). Because the use of risk needs assessments occurs in an agency environment, there are several implementation considerations when assessing the utility of the assessment within a juvenile justice environment. Despite the existence of well evaluated assessments and the prominence of the RNR framework in correctional research, implementing risk needs assessments to fidelity, and their practical incorporation into system decision making and services, lags behind the science and intended frameworks for their use (Bazemore, 1993; Taxman, 2013; Young et. al, 2006). In jurisdictions using standardized assessment tools, results do not always influence treatment and supervision decisions because of philosophical differences related to crime and responses to crime, available resources, staff attitudes, and adherence of treatment providers to best practice service models (Bourgeon, 2013; Cooley, 2011). Additionally, various stakeholders influence decision making with their own goals (D'Angelo, Brown & Strozewski, 2013).

Recent research has begun to examine the implementation of risk needs assessment into case management and treatment practices past the initial point of assessment to evaluate the

actual use of the results to inform implementation of services and interventions (Luong & Wormith, 2011; Peterson-Badali, Killing & Haqanee, 2015). Several explanations have been offered to explore fidelity issues within the assessment process and the subsequent gap between assessment and implementation into service provision and case management. Lack of staff buy in and training, little direction provided about implementation beyond initial assessment for case managers, lack of collaboration between agencies, and poor oversight and data collection are among the cited concerns with implementation (Bourgon, 2013; Latessa & Lovins, 2010; Luong & Wormith, 2011). Andrews and Bonta (2010) add service professionals' loyalty to other models, professionals unwilling to give up their own judgement or discretion in assessing an individual's risk to offend, political or legal barriers, or doubt related to the instruments' appropriateness in some cases to the list of implementation barriers.

It has been recommended that the risk need assessment be used for preventing recidivism through treatment and case management with the recognition that there is a level of uncertainty in its predictive accuracy (Olver, Stockdale & Wormith, 2009). A concern with implementation is that policy makers will attempt to make the tool a solution for everything (Gottfredson & Moriarty, 2006). In turn, justice workers can view risk needs assessments and related policies as taking away their profession discretion and opinion (Young et. al, 2006).

Inadequate training on the administration of the risk needs assessments and the subsequent use of the results can lead to concerns with reliability and validity (Latessa & Lovins, 2010). Barriers related to caseload and time demands can compromise the fidelity of the administration of assessments (Mulvey & Iselin, 2008). Careless completion of the instrument, worker failure to complete tools altogether, changing scores to fit worker goals, and overuse of overrides due to personal preferences or disagreements with results can impact an instrument's

validity and reliability (Miller & Maloney, 2013). If an agency does not have the appropriate, buy in, training structure, and ongoing oversight and support, the utility of the risk needs assessments can be diminished as an effective decision making and case planning aid. While the authors of risk needs assessments recognize that there is value in professional judgement, there is little research on the ability of professionals to increase the predictive accuracy of assessments using professional override options available on instruments like the YLS/CMI. Vaswani & Merone (2013) found that professional overrides lowered the YLS/CMI's predictive accuracy. Other researchers have highlighted concern that overrides may be used without considerable guidance or consideration of fidelity at a systemic level (Miller & Maloney, 2013).

A policy and agency practice of using risk needs assessment instruments does not mean the results inform actual decisions or appropriate implementation in agency settings (Miller & Maloney, 2013; Shook & Sarri, 2007; Vincent et. al, 2012). Incorporation of the RNR model, and risk needs assessment into casework does require that a case worker see him or herself as an agent of change in the offender's case management process rather than as a broker of services (Bourgon, 2013). Juvenile justice case managers are also limited by the services available to them to a degree. The value of the assessment process can be lost if other service providers are not operating under the same mission. Service providers are not always employed by the juvenile justice system and must do their own screenings and case plans that are driven by their agency's goals (Mulvey & Iselin, 2008; D'Angelo, Brown & Strozewski, 2013).

Another potential threat to the utility of a risk needs assessment is its fit within the structure of the juvenile justice system. Little research has been done on effective structuring of the administration and use of assessments within the system's various access and decision points (Vincent, Guy & Grisso, 2012). Most research concentrates on dispositional decision making

using risk needs assessment, however other research has shown that some of an assessment's utility is its ability to distinguish individuals that may benefit from being diverted earlier in the process (Vincent, Guy & Grisso, 2012; Hoge, 2012). The use of risk needs assessment in decision making also raises constitutional and philosophical concerns in the processing of juvenile offenders, especially prior to formal processing of the case. The criminal justice system has obligations regarding the due process rights of a juvenile, and implementing a risk assessment under a treatment model and for assisting in making decisions related to diversion program may come into direct conflict with issues surrounding due process by obtaining information during an assessment process that could be used against a juvenile in an adversarial court process (Hoge, 2012).

### **Methods in Measuring the Predictive Validity of Risk Needs Assessments**

Adherence to the risk principle requires that one is able to appropriately identify individuals at higher risk for continued criminal behaviors, and requires that the tool being used to make this determination is valid in predicting these future behaviors (Andrews & Bonta, 2010; Latessa & Lovins, 2010). A valid risk needs assessment also allows practitioners to evaluate the effectiveness of correctional practice to achieve the desired outcome of preventing criminal behavior and victimization (Andrews & Bonta, 2010; Latessa & Lovins, 2010; Vincent, Guy & Grisso, 2012). Several methods of analysis have been used in predictive validity studies. Issues in collecting and reporting data have also been discussed by researchers as these studies have evolved.

There are two types of errors that can occur in risk needs assessment evaluation. A person could be classified by the instrument as a recidivist when they do not ultimately continue to commit crime, or a person could be predicted to not continue criminal behavior but ultimately

continue to offend (Slobogin, 2013). In predictive validity studies of risk needs assessment instruments, these two errors are of importance in considering the usefulness of the tool in classifying offenders (Slobogin, 2013). The terms used to describe these errors are false positive and false negatives. False negatives are those offenders that are classified as non-recidivists but go on to offend, and false positive are offenders classified by risk needs assessment as recidivists but do not go on to offend (Andrews & Bonta, 2010). Andrews and Bonta (2010) suggest that a 2x2 predictive accuracy table that illustrates the true positives, true negatives, false positives, and false negatives within a sample has more applied meaning to practitioners who must consider the accuracy of the instrument in distinguishing between recidivists and non-recidivists based on risk scores. If using assessment to aid decisions about interventions, systems and practitioners will weight erring on the side of making a decision to encompass more offenders in an intervention at the risk of including offenders that will not reoffend, and choosing not to include offenders in an intervention or decision that may result in more individuals who will re-offend being excluded from the intervention.

Singh (2013) suggests that predictive validity studies should cover the agreement between actual risk and predictive risk by analyzing the number of individuals classified as high risk that continue to offend, and the number of individuals classified as low risk that did not reoffend. Second, predictive validity studies should evaluate an instrument's ability to differentiate between reoffenders and those that will not continue to offend. Researchers also attempt to address concerns related to inconsistent data collection within the predictive validity studies available on risk needs assessments. The definition of recidivism, crime, and control variables vary by study and can limit ability to compare across cases and jurisdictions, and the information that can be provided about a population, program or outcome (Mulvey & Iselin,

2008). Mulvey and Iselin (2008) recommend several methodological considerations in collecting data related to assessment and recidivism, including defining collection methods and constructs that can be used consistently across studies, focusing on short-term outcomes, and ensuring that assessments are updated regularly.

## **Summary**

Well over a decade of studies have evaluated the predictive validity of the various versions of the Level of Service risk needs instruments. Because these instruments are designed to assist agencies in case management and programmatic decision making for the purposes of preventing future criminal behavior. The assessment of predictive accuracy of risk needs instruments it also a foundational element for future evaluation related to the efficacy of practices and policies implemented by agencies to prevent and reduce crime (Andrews & Bonta, 2010). The local validation of such instruments, which are distributed with the assumption that the instrument will be valid to a local population, is important in ensuring that the decisions made are evolving from a knowledge base that is accurate; the instrument assists in identifying offenders' propensity to engage in future crime.

Evaluations of the predictive validity of the YLS/CMI have examined the assessment's ability to predict continued offending across various gender, race, types of offender, geography, history of abuse or neglect, and groups with different clinical diagnoses. Though results have had some variability, the YLS/CMI has established a reputation as an instrument that is generally able to accurately assess offender risks for future offense and criminogenic needs. Research on risk needs assessments and the YLS/CMI specifically, has generally agreed that the use of a risk needs assessment instrument is more accurate than professional judgement, and justify the utility of the assessments within correctional programming frameworks like the RNR for providing a

map for effective decision making, and offender interventions (Schwalbe, 2007; Latessa & Lovins, 2010). A risk needs assessment that is a valid predictor of an offender's future criminal behavior also provides a foundation for evaluating programming aimed at reducing recidivism and rehabilitation.

Meta-analysis affirms that the YLS/CMI generally predicts crime across various studies and it does so at a rate that is better than chance (Schwalbe, 2007). While several studies indicate that the YLS/CMI has moderate predictive accuracy, the composite risk score only accounts for a portion of the variation in offending (Onifade et. al, 2008a). False positive and false negative rates should also be evaluated to ascertain the number of youth that are categorized as recidivists or non-recidivists that are incorrectly categorized. If risk needs assessments are to be used for treatment and supervision decisions, false positives can lead to providing overly restrictive supervision and unneeded interventions, and youth categorized as non-recidivist who do go on to commit new offenses may not be given interventions that will protect the community and rehabilitate the offender (Andrews & Bonta, 2010). Risk needs assessment validity can also be impacted by poor implementation and systemic integration (Roque et. al, 2014; Shook & Sarri, 2007). This leaves room for continued investigation into the accuracy of the instruments themselves and the need to include other variables in predictive accuracy evaluations to address the complexity of individual offending and to investigate potential for further model development.

Researchers have progressed from a general question of accuracy to more narrow questions about specific populations. They have also sought to explain more of the variance in individual criminal offending than what is captured through the risk score alone. Most recently, research examining childhood maltreatment, clinical diagnoses, and the predictive accuracy of



the assessment over the life of a case have added layers of questions that have yielded results that expose potential weaknesses in the YLS/CMI's predictive accuracy as a tool that can predict future offenses across populations (Barnes et. al, 2016; Khanna et. al 2014; Li et. al, 2015; Onifade et. al, 2014). Research has shown that gender, race, age, having experienced abuse or neglect, and special education status can not only uniquely contribute to recidivism beyond universal risk need factors, but also potentially decrease the validity or appropriateness of the use of risk needs assessment for some groups of people (Barrett et. al, 2014; Cottle, Lee & Heibrun, 2001; Goddard & Myers, 2017; Rucklidge, McLean & Bateup, 2009; Ryan, Williams & Courtney, 2013) . Finally, geographic and cultural differences may impact the validity of risk needs assessments. Off the shelf risk needs assessments can be less predictive than a locally designed assessment (Miller & Lin, 2007). Within communities, the instrument may be more or less accurate once social factors of those localized areas are considered (Onifade et. al, 2011). In rural areas, assessment practices may be more dependent on formalized policies related to the use of assessments but resources and ideologies may impact actual decisions and how risk factors manifest within those systems, including what factors may lead to an increased propensity of re-offense (Bond-Maupin & Maupin, 1998; Cooley, 2011; Shook & Sarri, 2007; Weenink, 2011).

These variations in accuracy and results across specific populations highlight a need to continued research in new populations and systems that are implementing risk needs assessment. At an agency level, a local validation study is the first step in ensuring that the agency's assessment of individual offenders is meaningful. Meaningful assessment ensures that the information gathered from the risk needs assessment process can be utilized for decision making,

evaluating practices, and advocating for needed services that will contribute to reductions in offending.

## Chapter 3: Methods and Data

### Introduction

This study is a quantitative analysis of the predictive validity of the Youth Level of Service/Case Management Inventory 2.0 (YLS/CMI) among a rural juvenile court population in the Midwest. The data for this study was obtained from a rural court in the Midwestern United States.<sup>1</sup> A population of 215 cases are included in the dataset. The data represents a population of juveniles, age 10-17, that have been assessed for risk and need during the intake process using the YLS/CMI 2.0. Youth assessed have at least one pending delinquency petition with the juvenile court, and live within the jurisdiction of the court. YLS/CMI 2.0 scores and selected intake information were collected between January 1, 2013 and December 31, 2015. Recidivism data, also collected by the court and provided in the dataset, includes new offenses petitioned into court between the offense resulting in the original petition. The data was last officially updated by the court on July 31, 2016.

The collection and use of this data conforms to University HRRC requirements. All efforts have been taken to protect and maintain the confidentiality of the subjects. This study relies upon secondary data analysis. This secondary data was obtained with permission of the Probate and Family Division Judge and Court Administrator of the selected study site. A written memorandum of understanding was created that incorporated the Grand Valley State University use of data agreement form. Data delivered to the primary investigator was identity stripped to ensure confidentiality. The data was delivered electronically in an SPSS spreadsheet and stored

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<sup>1</sup> Demographic information related to the county and population is not being provided for this study in order to maintain confidentiality of the county.

in a locked office on a password protected USB. Part of the Memorandum of Understanding is that the data be destroyed upon completion of the Master's Thesis.

### **Research question**

The primary research question in this study is if the YLS/CMI 2.0 composite risk score predicts continued offending. In this context, the following independent and dependent variables will be used:

- Independent Variable: YLS/CMI 2.0 composite risk score
- Dependent Variable: Recidivism

### **Hypothesis**

For the purpose of this research, the null hypothesis is:

- H1: The YLS/CMI 2.0 composite risk score does not predict recidivism.

The court's probation officers administer the YLS/CMI after a juvenile has been formally or informally processed through the court as a result of a delinquency petition issued by the local prosecutor. The YLS/CMI is administered as a part of the intake and case planning process and through the life of the case. The information, including the composite YLS/CMI scores are entered into SPSS version 23 by the court's probation officers.

The composite YLS/CMI scores represent the independent variable used to assess the ability of the YLS/CMI 2.0 to predict recidivism in this population. The YLS/CMI 2.0 has 42 risk need factors that are scored dichotomously; the risk factor is present or not present. While the 42 indicators are organized into subdomains, which reflect the Central Eight predictors of criminal behavior as defined by Andrews and Bonta (2010), the cumulative score created by

totaling the presence of any of the 42 risk need factors is what defines the overall risk level. The instrument categorizes the total risk score into low, moderate, high and very high risk for continued offense (Hoge & Andrews, 2011).

The probation officers periodically collect recidivism data through review of their court's database. Recidivism, which is the dependent variable, is defined as the juvenile receiving a new offense or petition into either the juvenile or adult court. There are limits to the recidivism data collected because it represents what is accessible on the county system, or those petitions that have come to the probation officer's attention. For example, offenses that may have occurred out of state, were not entered into official databases, or that were held under deferral or other non-public programs may not be detected through these data collection methods. Additionally, this data is a reflection of continued criminal behavior based on official records and not self-reported or actual criminal behavior. By using only data collected prior to January 1, 2016, the analysis ensures that a minimum of six months have elapsed since the time of the initial assessment of those included in the sample to eliminate the inclusion of cases that would have only minimal amount of time to be petitioned into court for a new offense.

The data for this study is identity stripped. That is, there is no way to link specific cases or link specific individuals to the YLS/CMI 2.01. Data examined includes the composite YLS/CMI 2.0 score, subdomain scores, and the dates of offenses. Additionally, the juvenile court tracks several other social variables. As was the case with the YLS/CMI 2.0 scores, this data is also identity stripped to ensure the confidentiality of the subjects. Consistent with the literature reviewed, control variables in the study include gender, race, criminal offense type, special education designation, and history of neglect/abuse. To further explore the potential impact of place on both the likelihood of being detected or processed for criminal behavior and

the potential that risk factors may not have the same predictive power in different places, a variable for geographic location was also be included. Because of the dynamic nature of adolescent development, and the range of ages that are represented in the juvenile court (10 years old to 17 years old), age will be included as a control variable.

Table 3.

*Control Variables*

Variable	Type of Data	Description
Age	Continuous	-----
Gender	Dichotomous	Male/Female
Race	Dichotomous	White/All other Races
Offense Type	Dichotomous	Violent/Non-Violent
Special Education Status	Dichotomous	Yes/No
Neglect/Abuse History	Dichotomous	Yes/No
Geography	Dichotomous	Rural/Non-Rural

**Operationalization of Variables**

Table 3 shows the control variables that were used in the analysis. The following are definitions used for the variables included in this study:

- Independent Variable: Composite Risk Score- the composite score of the YLS/CMI 2.0
- Dependent Variable: Recidivism- offenses petitioned into the adult or juvenile court that have been registered in the county court’s data system or have otherwise come to the

attention of the probation office that occurred following the original petition for which the YLS/CMI was administered.

**Control variables.**

- Age: Defined as age in years at the time of the YLS/CMI 2.0
- Gender: Designated as Male or Female
- Race: White/All Other Races- Because the sample population is predominately white, the race variable includes two categories, white and all other races. Race is self-identified by the clients at intake.
- Criminal Offense Type: Violent/Non-Violent- Offenses of an assaultive or sexually assaultive nature (violence), and non-violent offenses. Non-violent offenses include status, property, theft, vehicle, and other offenses. In this court's data, offenses are not categorized by misdemeanor or felony.
- Special Education Status: Yes/No- This variable indicates if the juvenile is receiving special education or other formal academic support services at school. This data is self-reported and confirmed with academic records routinely collected.
- Neglect/Abuse History: Yes/No- Defined in a dichotomous variable that represents youth whose caregivers have had an open Child Protective Service investigation. The investigation did not have to result in removal. This data is self-reported by the juveniles' parents/caregiver.
- Geography: Rural/Non-Rural- Because of the rural nature of the county, census block data will not provide an accurate picture of the variance in socioeconomic status or other

social-geographic indicators. Data is controlled for surveillance and potentially different practices of the relatively larger areas of the county by controlling for offenses within cities or villages that have designated patrol or police departments (non-rural) and areas that are covered under the general jurisdiction of the county's sheriff department and State police (rural).

### **Data Issues: Interrater Reliability**

One issue in social science research is interrater reliability. Interrater reliability in the implementation of risk assessment refers to “the degree to which to (or more) raters provide similar assessments of the same offender” (Hoge & Andrews, 2011, p. 40). Potentially poor interrater reliability could be a threat to measuring the predictive validity of the instrument within this jurisdiction because data used for the study has been entered by numerous probation officers. This agency has used the following protocols to ensure interrater reliability. The probation department implemented the YLS in 2013. Probation officers were initially trained to administer and score the YLS/CMI through a two-day training provided by Multi-Health Systems Inc., the agency from which jurisdictions purchase the instrument. As additional staff have joined the department, training occurred through in-services provided by individuals affiliated with a university partnership with the juvenile court. The probation officers that were initially trained also received a booster training provided by the university partners in 2015.

### **Data Analysis**

Using SPSS version 22, the data is analyzed to assess the YLS/CMI total score's ability to discriminate between offenders who go on to commit new criminal offenses and those that do not. Descriptive statistics of the demographics of the sample population are reported in tables by examining the frequency of the presence of selected control variables, and the mean YLS/CMI



scores associated with the sample population. The recidivism rate of the sample population is also reported. In order to address the overall accuracy of the instrument's classification system, the percent of youth in each risk category who continued to offend will also be reported. This is similar to reporting a 2x2 prediction accuracy table recommended by Andrews and Bonta (2010). However, this analysis must address more than one cut off point in the YLS/CMI's classification system because categories include low, moderate, high and very high risk.

An initial analysis of the predictive accuracy of the YLS/CMI composite risk score to recidivism was conducted using logistic regression models. Control variables will be added to the model in order to determine if the control variables change the predictive accuracy of the YLS/CMI. Logistic regression is appropriate to use when assessing whether a continuous independent variable predicts a dichotomous dependent variable. In this case, the composite risk score is a continuous variable. Meanwhile, recidivism is recorded as a yes/no dichotomous outcome measure (consistent with the requirements of logistic regression). This is also an appropriate statistical method to use to explore the impact of the control variables on the predictive validity of the YLS/CMI (Singh, 2013). This analysis will explore if, and to what degree the likelihood of recidivism increases as a juvenile's YLS/CMI score increases.

### **Presentation of Data**

The presentation of data is multifaceted. First, descriptive statistics are presented in tabular form. Non-parametric tests of association are also performed when appropriate, furthermore, correlation coefficients will also be measured to ensure that all variables used in the final model estimations are mutually exclusive. Following the tables related to descriptive statistics, this study will present tabular information related to logistic regression and subsequent

model estimations. These models will report those control variables that are statistically significant only.

## Chapter 4: Results

A population of 215 cases exist in the dataset. There are 88 (40.9%) cases within the sample population that have received a new offense since the original petitioned offense that resulted in a YLS/CMI assessment at intake. The total YLS/CMI score in the dataset have a mean of 13.94. This mean score falls into the moderate risk category. Table 4 shows the YLS/CMI scores.

Table 4.

### *YLS/CMI Composite Risk Score*

	N	Minimum	Maximum	Mean	Std. Deviation
YLS/CMI total score	215	.00	30	13.94	6.85

### **Descriptive Data**

Table 5 shows the control variables (and descriptive statistics) used in the study. Specific demographic variables include race (white/all other races); Gender (male/female) and Age (continuous). Social variables used in analysis include special education status (yes/no), neglect/abuse history (yes/no), and geography (rural/non-rural). Finally, the type of offense (violent/non-violent) is taken into consideration. Non-parametric tests were used to explore whether there were differences between the recidivists and non-recidivists when grouped by categorical variables. A t-test was used to examine differences among age groups. One variable found in Table 5 is statistically significant. Neglect/abuse history is statistically different between the recidivist and non-recidivist groups ( $\chi^2 = 6.855$ ,  $df=1$ ,  $N=209$ ,  $p=.011$ ).

Table 5.

*Description of Control Variables (N=215)*

		Non-Recidivists		Recidivists	
		n	%	n	%
Race	White	109	85.8	76	86.4
	All Other Races	18	14.2	12	13.6
Gender	Male	87	68.5	62	70.5
	Female	40	31.5	26	29.5
Special Ed. Services	Yes	37	29.1	26	29.5
	No	88	69.3	60	68.2
	Missing	2	1.6	2	2.3
Neglect/Abuse History*	Yes	53	41.7	52	59.1
	No	71	55.9	33	37.5
	Missing	3	2.4	3	3.4
Offense Type	Violent	24	18.9	21	23.9
	Non-Violent	103	81.1	67	76.1
Geography	Rural	31	24.4	15	17
	Non-Rural	85	66.9	66	75
	Missing	11	8.7	7	8
Age	10-12	21	16.5	7	8
	13-15	67	52.8	53	60.2
	16+	39	30.7	28	31.8

\*Statistically significant ( $\chi^2=6.855$ ,  $df=1$ ,  $p<.01$ )

Cases were divided into risk categories as defined by the YLS/CMI 2.0. Table 6 shows the risk category status of recidivists and non-recidivists to explore if there are any differences between the two groups. Offenders were classified into four groups based on existing YLS classifications: Low, Moderate, High and Very High Risk. For the purpose of statistical analysis, the High Risk and Very High Risk groups were collapsed into one category (High/Very High). Low Risk youth make up 25.1% of the population, moderate risk youth make up 56.7% of the population and High/Very High Risk offenders are 18.1% of the population. Of the juveniles classified Low Risk, 25.9% committed a new offense, 42.6% of Moderate Risk juveniles recidivated, and 56.4% of High/Very High Risk offenders committed a new offense. Chi-square test show that there is a significant difference between recidivists and non-recidivists among the risk categories ( $\chi^2 = 9.038$ ,  $df=2$ ,  $N=215$ ,  $p=.011$ ).

Table 6.

*Recidivism by Risk Category*

	Non-Recidivists	Recidivists
	n	n
Low Risk	40	14
Moderate Risk	70	52
High/Very High Risk	17	22

\*These differences are statistically significant ( $\chi^2 = 9.038$ ,  $df=2$ ,  $p<.05$ )

## The Models

Logistic regression was used to assess the predictive accuracy of the independent variable, total composite risk score, to the dependent variable, recidivism. The YS/CMI Composite Risk Score significantly predicted recidivism,  $\chi^2=12.66$ ,  $df=1$ ,  $N=215$ ,  $p \leq .01$ ). The percent of the variance that can be predicted from the YLS/CMI composite risk score is 7.5% (Nagelkerk  $R^2$ ) and 5.5% (Cox & Snell  $R^2$ ). The model correctly predicted 82.7% of those that did not recidivate, while 29.5% of those that did recidivate were predicted correctly. Table 7 also shows the odds ratios. For each affirmed risk factor, the odds of recidivism increase by 7.6%.

Table 7.

*Logistic Regression Model: Predicting Recidivism Using the Composite Risk Score*

Variable	Population					
	B	SE	Wald	df	Sig.	Exp(B)
Composite Risk Score	.073	.022	11.466	1	.001	1.076
Constant	-1.411	.344	16.766	1	.000	.244

7.5% (Nagelkerk  $R^2$ ) and 5.5% (Cox & Snell  $R^2$ ).

Finally, a logistic regression model was constructed (see Table 8) incorporating the control variables, geography, race, offense type, neglect/abuse, special education status, gender, and age. This was conducted to assess if the predictive validity of the instrument's composite risk score is maintained when accounting for other variables. The YLS/CMI Composite Risk Score significantly predicted recidivism,  $\chi^2=19.796$ ,  $df=8$ ,  $N=188$ ,  $p \leq .01$ ). The percent of the variance that can be predicted from the YLS/CMI composite risk score is 13.5% (Nagelkerk  $R^2$ )

and 10% (Cox & Snell  $R^2$ ). The model predicted 80.2% of those that did not recidivate correctly, while 42.9% of those that did recidivate were predicted correctly. Table 8 shows the odds ratios, which suggest that for each affirmed risk factor, the odds of recidivism increase by 7%. The addition of the control variables increased the percent of the total variance in recidivism that is accounted for by the YLS/CMI total risk score. The original model accounted for 5.5% (Cox and Snell  $R^2$ ) and 7.5% (Nagelkerke  $R^2$ ), the inclusion of the control variables increased the percent of variance in recidivism accounted for to 10% (Cox and Snell  $R^2$ ) and 13.5% (Nagelkerke  $R^2$ ). The original model predicted 29.5% of the recidivists correctly. The inclusion of the control variables increased the percent of recidivists predicted correctly to 42.9%. In the original model, 82.7% of non-recidivists were predicted correctly. The percent of non-recidivists predicted correctly decreased to 80.2% with the inclusion of the control variables.

Table 8.

*Logistic Regression Model: Predicting Recidivism using the Composite Risk Score and Control*

*Variables*

Variable	Population					
	B	SE	Wald	df	Sig.	Exp(B)
Composite Risk Score	.068	.026	6.568	1	.010	1.070
Age	.169	.110	2.335	1	.127	1.184
Gender	-.426	.365	1.366	1	.243	.653
Race	-.075	.455	.027	1	.868	.927
Offense Type	-.040	.397	.010	1	.919	.961
Special Education Status	.023	.368	.004	1	.949	1.024
Neglect/Abuse History	-.549	.332	2.738	1	.098	.578
Geography	-.438	.396	1.227	1	.268	.645
Constant	-3.186	1.711	3.470	1	.063	.041

13.5% (Nagelkerk  $R^2$ ) and 10% (Cox & Snell  $R^2$ ).



## Chapter 5: Recommendations

### Discussion

The purpose of this study is to evaluate the predictive accuracy of the composite risk score generated by the use of the YLS/CMI risk needs assessment for the prediction of recidivism in one Midwestern juvenile court. The null hypothesis is that the YLS/CMI 2.0 composite risk score does not predict recidivism. Upon analysis of the data, the null hypothesis can be rejected. The composite risk score significantly predicted recidivism ( $\text{Exp}(B)=1.076$ ,  $p \leq .01$ ). That is, for each affirmed risk factor on the YLS/CMI, the odds that the juvenile will recidivate increases by 7.6%. To account for demographic or social variables that may impact the predictive validity of the instrument, control variables of age, gender, race, offense type, special education status, history of neglect/abuse, and geography were added to the model. There were group differences found between the recidivist and non-recidivist populations within the variable of history of abuse/neglect ( $\chi^2=6.855$ ,  $df=1$ ,  $p<.01$ ). When the control variables were added to the model, the odds ratios suggest that for each affirmed risk factor contributing to the composite risk score, the odds of recidivism did decrease slightly but remained significant ( $\text{Exp}(B)=1.070$ ,  $p \leq .01$ ).

The findings in this study confirm several previous studies of the predictive validity of the YLS/CMI composite score. The findings from this study also support the extant literature that suggests that there should be differences between the recidivists and non-recidivists when examined by risk categories. Some studies have found that demographic variables related to gender, geographic location, race, and diagnoses can impact the validity of the test or may be a unique contributing factor to offending (Barnes et. al, 2016; Li et. al, 2015; Maupin & Maupin, 1998, Olnifade, Davidson & Campbell, 2009; Onifade et. al, 2014; Schmidt, Campbell &

Houlding, 2011; Weenink, 2011; Welsh, 2008). This study found that the YLS/CMI continued to predict recidivism in the sample population following the addition of control variables. None of the control variables were a unique predictor of recidivism. However, the predictive validity did decrease from an increase in the likelihood of recidivism by 7.6% with each affirmed risk point scored on the YLS/CMI to a 7% increase in the likelihood of recidivism with each additional affirmed point. This suggests that the control variables were not significantly predictive of recidivism within the model, though differences were found between recidivist and non-recidivist groups for the variable of history of abuse/neglect. Similar to other studies, (see Barnes et. al., 2016; Hiterman, Nicholls & van Nieuwenhuizen, 2014; Onifade et. al, 2008a; Onifade et. al, 2011; Vaswani & Merone, 2013) the YLS/CMI does not account for all of the variance in continued criminal offending among the population. The addition of the control variables did increase the total variance accounted for by the model. Finally, the addition of control variables did change the percent of true positives, recidivists predicted correctly, from 29.5% of the recidivists predicted correctly to 42.9% predicted correctly. In the original model, 82.7% of true negatives, non-recidivists predicted correctly, decreased to 80.2% when control variables were added to the model.

### **Strengths and Limits of the Study**

Several strengths exist in this study. One of the first strengths is the data itself. This study used a population of cases from one rural court jurisdiction. Since a sample was not used, the study is representative of the predictive accuracy of the YLS/CMI on this population. The agency also implemented some quality assurance strategies into their implementation of the YLS/CMI, including training and interrater reliability exercises. Consistent scoring limits threats to validity created by improper implementation of the instrument (Hoge & Andrews, 2011;

Shook & Sarri, 2007). The data is placed into a database upon collection, alleviating possible issues with having to conduct the assessment retroactively with file review, which could limit the available information and may increase inconsistencies in data collection (Catchpole & Gretton, 2003). The YLS/CMI composite scores recorded were based on scores obtained directly from the interview process using the instrument's interview guide rather than making inferences about a youth's criminogenic needs based on information that can be found in the file. The data utilized for this study had a minimum of 6 months and a maximum of 3.5 years for a juvenile to recidivate allowing for the instrument to be tested for predictive validity in beyond a very short follow up period. The agency has also implemented a data collection routine that includes a formal collection of recidivism data from their available data systems every six months. Another strength in the dataset is that the agency conducts the risk needs assessment on all juveniles petitioned to court that admit responsibility and are placed on probation or agree to diversionary programs. The literature review revealed that many studies have extracted risk needs assessment scores from individuals referred for a specific evaluation or program, which may not be reflective of the community's entire offender population (Schmidt, Hoge & Gomes, 2005; Welsh et. al, 2008). This data reflects the agency's population of juvenile offenders regardless of the severity of their behaviors, and the assessment is a result of the petition into their court rather than a referral of the juvenile to a program, facility, or as part of a larger evaluation, often reflecting youth that have already been flagged for more intensive interventions for a specific reason beyond their delinquency petition.

There are several limitations to the data collection. Because the data is secondary, the study relies upon the agency's collection practices. The researcher does not have control over the data or an ability to address missing data or collect other information that may clarify data to

avoid inconstancy (Catchpole & Gretton, 2003). For example, in this dataset, the agency collects information about where the offense occurred. However, if the offense did not occur in the county, additional information about geography cannot be deciphered, resulting in missing data. In this case, information about whether the offense occurred in a rural location or a location that had a designated police agency could not be determined for offenses that occurred outside of the county. However, there were sufficient cases with location information for the variable to be used in the model. The agency also does not record the type of offense that occurs at the point of recidivism. The study is thus limited to assessing the composite risk score's ability to predict recidivism overall, but not whether it better predicts certain types of recidivism. For example, some studies have found the YLS/CMI has mixed results when various types of offenses are considered. Anderson et. al's study of truant youth showed that the YLS/CMI predictive overall recidivism but did not predict future truancy (2016). An agency may have more interest in the instrument's ability to predict certain types of future behavior, such as violent offenses, in order to ensure that decisions made with the assistance of the instrument are contributing to the biggest public safety concerns. Additional information about the types of recidivism occurring, and its potential relationship with the YLS/CMI may assist the agency in determining if intake practices for certain types of offenders should include other forms of assessment. The authors of the instrument have indicated clearly that the assessment is for assessing risk of offending in general, and is not intended as an instrument related to the type of offending (Hoge & Andrews, 2011). However, from an agency perspective, information about the YLS/CMI's relationships with the prediction of specific types of offending behavior can be valuable.

There are limitations to the research that should be noted as it relates to the collection of recidivism data. Recidivism continues to be an outcome that is of great importance to the

criminal justice system, but is not easily defined or collected (Harris, Lockwood & Mengers, 2009). Due to a lack of standardization, the operationalization of recidivism varies across the literature. For example, recidivism can range from the commission of new violations if a youth is still jurisdictional, it can mean new arrests, new petitions, or new adjudications (Harris, Lockwood & Mengers, 2009). The agency from which this data was obtained defines recidivism as new offenses petitioned into court. It is collected through the use of the county data system and through informal contacts that probation officers make with previous clients. The official databases are subject to reporting errors or differences in how various counties or workers report information. The databases often do not show individuals that were petitioned into court but received deferral agreements or other diversion options. Additionally, local information is easier to find and more accurate than finding recidivism about offenses that may have been committed in other jurisdictions. Official records have limitations because they only report what criminal behaviors have been documented, rather than actual behaviors (Barnes et. al, 2016; Olver, Stockdale & Wong, 2009; Schmidt, Campbell & Houlding, 2011; Welsh et. al, 2008). The inclusion of geography and social variables was utilized in this study to help assist in controlling for potential systemic differences in policing and prosecution within the county. In this dataset, these variables do not appear to be a unique predictor of recidivism, nor do they impact the validity of the YLS/CMI composite risk score in predicting recidivism overall.

Some methodological limitations to the analysis itself should be noted. The statistical analysis used in this study was logistic regression. This is an appropriate method for measuring the accuracy of the instrument's composite risk score, a continuous variable, for its ability to predict recidivism, a dichotomous variable (Singh, 2013). Additionally, this study examined the potential for other social demographic variables to impact the prediction of re-offense and the

accuracy of the instrument. However, a commonly used analysis for investigating the predictive validity of risk needs assessment is the Receiver Operating Characteristic (ROC) and Area Under Curve (AUC) (Rice & Harris, 1995; Schwalbe, 2008, Singh, 2013). The inclusion of the AUC in future analysis of this data would help to further understand the relationship between the risk score and recidivism by evaluating the percent likelihood that a recidivist will have a higher score than a non-recidivist (Rice & Harris, 1995). ROC allows one to further consider cutoff scores and the instrument's false positives and true positives at various risk score points.

Another limitation related to the methods used in this study are relevant to the time frame used. The study does not account for time after assessment to recidivism, so some cases had six months to recidivate while older cases would have had over three years. It was beyond the scope of the current research question to study the impact of time on the predictive validity of the composite risk score. Further research would likely benefit from accounting for the time to re-offense, and considering at which points the instrument is most predictive. The authors of the instrument recommend that a juvenile's YLS/CMI be updated every six months, suggesting that the dynamic nature of a juvenile's development and circumstances require additional attention in assessing risk and criminogenic needs as it is used for case planning. This additional information would be useful at an applied level for the agency for the purposes of determining supervision and service dosage that may impact shorter versus longer term continued criminal behavior. For example, if the instrument were to have a stronger predictive validity within a short period of time, the agency may make decisions about supervision or placing a high-risk community based youth in a high dosage comprehensive program that begins service provision quickly upon the youth entering the system. The measurement of time will also become important as the agency considers further evaluation about their assessment and programming. Examining the agency's

data as it relates to reassessment, exit assessments, and the interaction of time and the interventions provided are possible directions for future research.

This study has limits related to generalizability and sample size. The sample size of this study is 215 cases with 88 recidivists. Recently, the National Reentry Resource Center recommended 500 cases for a local validation study, with at least 100 cases having reoffended within two years (Hanson et. al, 2017). While the population was small, it should nevertheless be pointed out that there were enough cases for the logistic regression model to run. The present study also represents one juvenile offender population in a rural Midwest court jurisdiction, and is not representative of the juvenile offender population as a whole. However, the research conducted contributes to the knowledge base surrounding the validity of the YLS/CMI composite score for the prediction of recidivism. The research supports the use of this off the shelf risk needs assessment as a valid instrument for assessing risk across various populations. The information is also important at an applied level for this specific county and allows administrators to have information about their assessment process for the purposes of future policy development and evaluation research.

### **Future Research and Policy Implications**

This study explored the appropriateness of an “off the shelf” risk needs assessment instrument in this rural jurisdiction, which has not previously been studied. It also provides a base for several directions in future research. Already mentioned, the findings from this study can be strengthened with the addition of additional variables related to time, and exploration regarding the usefulness of the instrument in explaining specific types of future offense. The relationship between recidivism and the composite risk score could be further assessed with additional measures of validity. At an applied level, this study provides the agency with

information about the predictive validity of its chosen risk needs assessment tool. Knowing that the instrument has predictive validity allows the agency to utilize the YLS/CMI score as a program evaluation measure to assist in measuring the effectiveness and outcomes of services provided as it relates to a juvenile's risk to reoffend. Additionally, the information can be used for the agency to better explore its adherence to the remaining parts of the Risk Needs Responsivity (RNR) model by evaluating how its practices are influenced by its assessment process. This information also can be a springboard for identifying additional gaps and needs in programming.

There were differences between recidivists and non-recidivists in one of the control variable groups utilized in this study. The results of the logistic regression models revealed that the addition of control variables increased the amount of variance in offending explained, and increased the number of recidivists predicted correctly. It was beyond the scope of the research question to further analyze what these differences may be, or how the addition of social and demographic variables provides more information about offending behavior or criminal processing in this community. Future research could seek additional information related to the specific groups. The literature shows that the YLS/CMI may not always predict the future offenses of a group of youth that had history of abuse and neglect (Li et. al, 2015; Onifade et. al, 2014). This study examined whether the YLS/CMI score continued to predict future offense among an entire population that included a population of youth that had a history of abuse and neglect. When abuse/neglect was placed in the model, the predictive validity of the YLS/CMI score was retained for the overall population; abuse/neglect history also was not a unique predictor of continued offending.



For future policy considerations, it is important to conduct further investigation into the predictive accuracy for specific populations of offenders. Because this population did show that there were differences between recidivists and non-recidivists in the abuse/neglect subpopulation, further inquiry will assist the agency in policy development by exploring these differences and evaluating practices that ensure effective assessment of risk and needs and intervention with specific populations. Future research could explore the population of youth with a history of abuse/neglect to determine social, demographic and criminogenic needs and risk variables that contributed to the differences in recidivist and non-recidivists for this group. Further research could also explore the predictive accuracy of the YLS/CMI using only a sample of youth that have a history of abuse and neglect. Goodard and Myers (2017) suggest that risk needs assessment ignore some of the social structures that may impact specific populations and contribute to offending for reasons that are outside of individual level risk variables. Future research could explore how social factors outside of the risk needs assessment explain the differences in the recidivists predicted correctly when control variables were added to the model.

Future research may also explore the variance that is not accounted for by this risk need assessment tool. Because risk need assessment does not explain 100% of the differences in individual offending, additional research should explore what other variables are not currently measured. The risk need assessment process was not intended to take away the role of professionals, nor is it intended to be prescriptive and the only thing considered by agencies in decision making (Hoge & Andrews, 2011). Rather, it is intended to assist in case planning and is one part of a complex combination of variables that determine what causes continued offending. The YLS/CMI is intended to assist in identifying the services and supervision appropriate for each individual's rehabilitation and the management of safety. Third and fourth generation risk

needs assessment instruments have been shown to be more accurate in determining risk level than judgement alone (Latessa & Lovins, 2010). However, much work is left to be done in understanding and predicting the variation in individual offending as well as the subsequent use of this information to provide effective rehabilitative treatment and offender management.

The RNR framework of correctional practices calls for the identification of higher risk individuals through the use of risk needs assessment. Those who are more likely to offend are to be targeted for services, supervision and resources that will address criminogenic needs and reduce the individual's risk for recidivism. The instrument's authors provide recommended cutoff points for low, moderate, high, and very high risk classification. Compared to the normative community offender population the authors of the instrument use for its cut off points, this offender population has more offenders that are placed in the high/very high risk category. In this population, 25.7% of females and 14.8% of males are high/very high risk compared to the normative sample of 13% of males and 13.7% of females. Additionally, the low risk group is 44.5% of the female and 41.5% of the male population in the normative sample, and 30.3% of the female and 22.8% of the male population in this population (Hoge & Andrews, 2011). Future studies could determine the appropriateness of the given cutoff scores for this population or if different cutoff scores could improve the classification system used for the sample population.

Recently, conversations have surrounded the need for researchers and practitioners to have a common language for discussing categories of risk for recidivism that is not limited to the specific risk needs assessment tool used. The National Reentry Resource Center released a recommendation for a use of a common language for researchers and practitioners in the area of criminogenic risk and needs assessment. With a goal to assist with the implementation and

application of risk needs assessments within the RNR model, the NRRC's white paper suggestions the use of a five-level system of describing the risks and needs of offenders (Hansen et. al, 2017). Citing the absence of a standard definition of risk and need categories, issues with comparing results across various instruments, different categorization methods across instruments, and different expectations related to what the probability of continued offense is within risk needs categories, the effort to move forward a common language attempts to deal with and present solutions for some of the implementation and evaluation barriers to assessment and the ways in which risk is discussed (Hansen et. al, 2017). Future studies that examine groups of offenders beyond the formally constructed risk categories provided by the instrument will be useful in breaking down data further to more specifically understand subgroups of the offender population, their risk to reoffend, and appropriate programming. As demonstrated in this dataset, over 50% of the offender population is classified as "moderate risk" for re-offense. However, this classification tells this agency little more than that the majority of the county's offenders fall into a group that offends at a rate that is just above (42.9%) the average re-offense rate for the entire population in the dataset (40.9%). The broadness of the instrument's current risk needs classification system has less applied value than what may be desired by practitioners making decisions about program placement and supervision. The RNR framework asks practitioners to match services and supervision with higher risk offenders, however the classification system in the YLS/CMI within the population does not appear to provide the agency with enough information to know which offenders are best served in the moderate and high risk categories who still have variability in recidivism. The work done with subgroups within risk categories was examined by Onifade et. al (2008b) using a factor analysis also resulting in five groupings of risk categories, though different from the ones presented by NRRC.

In that study, the recidivism differences within the groups told a deeper story than the general classification system provided by the YLS/CMI (2008b). The potential benefit of more narrow risk needs categories is a direction for future research.

Recent risk needs assessment literature has begun exploring the dynamic nature of risk needs assessment, including evaluations of predictive validity of the assessments through the life of the case (Barnes et. al, 2016). Researchers are also exploring the responsivity principle of the RNR framework, which has been researched less extensively than the risk principle (Bourgon & Bonta, 2014). The current study evaluated the initial intake assessment score obtained by the agency, and does not evaluate the agency's implementation of the assessment, the role of the assessment in decision making, services, or its place in the greater RNR framework. Future research could explore how responsivity factors assessed interplay with the risk principle. It could also explore how service matching to criminogenic risk and needs impacts the juvenile's risk needs score over time.

## **Conclusion**

The assessment of offenders for risk of continued offending is important to the design of appropriate programming that will reduce recidivism and prevent a juvenile from further penetrating the criminal justice system. This issue continues to be explored among researchers, policy makers, and applied in criminal justice agencies. The use of risk needs assessment can assist practitioners in limiting bias, making evidence-based judgements rather than using professional judgement alone, and in creating a systemic way to place offenders into appropriate programs that will reduce risk to reoffend. The risk assessment process is part of a larger framework of correctional practice called the Risk Needs Responsivity (RNR) model with a goal of improving public safety and implementing effective methods of rehabilitation. This

framework is grounded within Andrews and Bonta's (2010) General Personality and Social Cognitive Learning perspective of offending, which considers with individual differences in behaviors.

The current study evaluated the predictive accuracy of one jurisdiction's juvenile offender population's YLS/CMI composite risk scores for predicting future offense while taking into consideration the possibilities of social and demographic variables that may also impact re-offense rates or systemic responses to behaviors. The study found that the YLS/CMI composite risk score for this population had predictive validity, and continued to be valid with the addition of social and demographic control variables. As such it is an appropriate tool to use for the assessment of risk and need for continued criminal behavior in this population, and to use as the first step in the implementation of the Risk Needs Responsivity framework for correctional practice within this agency's jurisdiction.

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