

EXPLORING THE RELATIONSHIP OF CRIMINOGENIC NEED, RISK OF RECIDIVISM,
OFFICIAL RECIDIVISM, AND GANG STATUS IN YOUTH OFFENDERS

By

Amber Angelina Mandalari

A THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

Criminal Justice—Master of Science

2017

ABSTRACT

EXPLORING THE RELATIONSHIP OF CRIMINOGENIC NEED, RISK OF RECIDIVISM, OFFICIAL RECIDIVISM, AND GANG STATUS IN YOUTH OFFENDERS

By

Amber Angelina Mandalari

Research indicates that gang-involved youth are at risk for numerous negative outcomes, including elevated risk of involvement with the juvenile justice system. While many studies have examined the differences between gang-involved youth and their non-gang, non-delinquent peers, differences among non-gang and gang-involved juvenile delinquents have been less explored. This study explored the relationship of areas of criminogenic need, risk of recidivism, and official recidivism between gang and non-gang justice-involved youth using the Youth Level of Service/Case Management Inventory (YLS/CMI). Results from regression analyses suggest gang status is positively associated with scores of criminogenic needs, risk of recidivism, and official recidivism. However, gang status was not found to moderate the predictive validity of the YLS/CMI for official recidivism. These results indicated it is important for justice system practitioners to consider gang status when making programming and intervention decisions. Limitations and future directions are also discussed.

Copyright by
AMBER ANGELINA MANDALARI
2017

To my family, my rock.
To David, my heart and soul.
& to my friends, for your encouragement.
Thank you for always supporting and believing in me.

ACKNOWLEDGMENTS

It's impossible to acknowledge everyone who has helped me throughout this process - there have been too many! But I would like to especially thank a few key figures, without whom this thesis would have not been possible:

Dr. Christopher Melde, for your mentorship, motivation, and countless hours of time and attention devoted to guiding me through this project.

Dr. Caitlin Cavanagh, for your guidance, suggestions, and feedback.

Dr. William Davidson II, for your feedback, mentorship, and direction. I would not be where I am today without your faith in me.

Dr. Ashlee Barnes, for your unwavering encouragement, guidance, accountability, advice, and care. Your example continues to inspire me.

Sean Hankins, for helping me find my purpose and trust in my own potential.

David, Mom, Dad, Anthony, Michael, and Angela, for keeping me grounded and accountable, and supporting me always.

My cohort-mates and Dr. Caitlin Listro: for your camaraderie and encouragement through this process.

TABLE OF CONTENTS

LIST OF TABLES	viii
LIST OF FIGURES	x
CHAPTER 1. Introduction.....	1
CHAPTER 2. Literature Review.....	4
2.1 <i>The Risk-Needs-Responsivity Model of Offender Rehabilitation</i>	4
2.2 <i>Risk Assessment</i>	6
2.3 <i>Risk Assessment & the RNR Model with Offender Subtypes</i>	7
2.4 <i>Review of Existing Research on the Criminogenic Risk and Needs of Gang-Affiliated Youth Offenders; and the Relationship of Gang-Affiliation, Delinquency, and Recidivism</i>	8
2.4.1 The effects of youth gang involvement on delinquency and adult functioning.	9
2.4.2 Gang-involved youth offenders & recidivism.	12
2.4.3 Criminogenic needs and the RNR model with gang-involved youth offenders.	13
2.5 <i>The Current Study</i>	16
2.5.1 Significance of the current study.....	17
CHAPTER 3. Methods	20
3.1 <i>Setting</i>	20
3.2 <i>Sample</i>	21
3.3 <i>Measures</i>	23
3.3.1 The Youth Level of Service/Case Management Inventory (YLS/CMI).	23
3.3.2 Gang status.	24
3.3.3 Recidivism	25
3.4 <i>Procedure</i>	25
CHAPTER 4. Results	26
4.1 <i>Gang Involved vs. Non-Gang Involved Youth</i>	26
4.2 <i>Relationship of Criminogenic Needs, Risk of Recidivism, Official Recidivism, and Gang Status</i>	30
4.2.1 Gang status and areas of criminogenic need.	30
4.2.2 Risk of recidivism and gang status.	41
4.2.3 Official recidivism and gang status.	44
4.3 <i>Does Gang Status Affect Prediction on the YLS/CMI?</i>	46
CHAPTER 5. Discussion	52
5.1 <i>Limitations</i>	57
5.2 <i>Future Directions</i>	59

APPENDIX	61
REFERENCES	63

LIST OF TABLES

Table 1.	Sample demographic characteristics	22
Table 2.	Distribution of included gang categories.....	24
Table 3.	Sample demographic characteristics by gang category.....	27
Table 4.	ANOVA comparison of yes and suspected gang youth.....	29
Table 5.	T-test comparison of yes and suspected gang youth.....	29
Table 6.	Chi square comparison of yes and suspected gang youth.....	29
Table 7.	Multi-variate regression of the effect of gang status and controls on prior offense domain score.....	32
Table 8.	Multi-variate regression of the effect of gang status and controls on education domain score.....	33
Table 9.	Multi-variate regression of the effect of gang status and controls on leisure domain score.....	34
Table 10.	Multi-variate regression of the effect of gang status and controls on peer domain score.....	35
Table 11.	Multi-variate regression of the effect of gang status and controls on substance use domain score.....	36
Table 12.	Multi-variate regression of the effect of gang status and controls on family domain score.....	37
Table 13.	Multi-variate regression of the effect of gang status and controls on attitude domain score.....	38
Table 14.	Multi-variate regression of the effect of gang status and controls on personality domain score.....	39
Table 15.	Multi-variate regression of the effect of gang status and controls on total YLS/CMI score.....	42
Table 16.	Logistic regression of the effect of gang status and controls on recidivism.....	45
Table 17.	Does gang status moderate the predictive validity of YLS/CMI total score on official recidivism?.....	47

Table 18.	Does gang status moderate the predictive validity of YLS/CMI risk level on official recidivism?.....	49
Table 19.	Contents of the Youth Level of Service/Case Management Inventory (YLS/CMI).....	62

LIST OF FIGURES

Figure 1. Standardized average scores of gang and non-gang youth offenders on each dynamic risk/criminogenic need domain.....30

Figure 2. Average risk of recidivism score for gang and non-gang youth offenders.....41

Figure 3. Distribution of risk of recidivism scores for gang vs. non-gang youth offenders.....41

Figure 4. Re-offense rate for gang and non-gang youth offenders43

CHAPTER 1. Introduction

Gang membership is a social problem affecting a vast number of youth in the United States (Pyrooz & Sweeten, 2015). Despite decades of research and programming devoted to gang prevention and intervention (Merrin, Hong, & Espelege, 2015), this issue is still widespread. A 2012 survey of more than 2,500 police agencies by the National Gang Center (n.d.) indicated that the number of police agencies reporting gang problems significantly increased from 2001 to 2012. Recent estimates state that there were about 1,059,000 gang members present in the United States in 2010; the equivalent of about 2% of the U.S. population in this age range during that time (Pyrooz & Sweeten, 2015). Moreover, about 1 in every 50 individuals between the ages of 5 and 17 in the United States reports active gang membership (Pyrooz & Sweeten, 2015). Research has shown that gang members are at elevated risk for a host of problems. Gang membership increases the probability and frequency of criminal involvement; increases the probability of arrest; and is associated with increased risk of homicide, substance abuse, lower educational attainment (Pyrooz, 2014), gun use, and financial problems (Krohn, Ward, Thornberry, Lizotte, & Chu, 2011; Sharkey, Shekhtmeyster, Chavez-Lopez, Norris, & Sass, 2010; Taylor, Peterson, Esbensen, & Freng, 2007; White & Mason, 2006).

As increased participation in juvenile delinquency is consistently found to be associated with gang membership (Esbensen & Carson, 2012), it can be assumed that many gang members will become involved with the juvenile justice system. This involvement offers the potential for rehabilitation or intervention in the lives of these gang members by justice system officials. In order for these rehabilitative efforts to be successful, they must be based in empirical understanding. Unfortunately, there is little agreement in the scientific literature concerning how to best direct the rehabilitation of gang-involved juvenile offenders, including if practices already

accepted as useful for non-gang juvenile offenders are also sufficient for gang-involved youth (Chu, Daffern, Thomas, & Lim, 2012).

One example of an evidence-based rehabilitation process followed by many juvenile court systems is the risk-needs-responsivity (RNR) model (Andrews & Bonta, 2006, 2010). This model, which involves assessment and targeted rehabilitation programming to identify and address individual criminogenic needs¹, has been shown to reduce recidivism by as much as 35% (Andrews & Bonta, 2010). Previous research has shown that intervention programming based on the RNR model can be effective in reducing recidivism and institutional misconduct for adult gang-affiliated offenders (DiPlacido, Simon, Witte, Gu, & Wong, 2006). In order for this approach to be utilized with youth, research must first examine if gang-involved youth have unique criminogenic risk and needs as compared to non-gang juvenile offenders. If patterns across criminogenic risk domains can be identified for gang-involved juvenile delinquents, the juvenile court system can utilize this information to tailor the response to gang-affiliated youth, and create or enhance rehabilitation programming to address the specific needs of this sub-population.

An effective way to identify criminogenic risk and needs is through the use of empirically-based risk assessments (Andrews & Bonta, 2006). To date, few studies have addressed this topic and utilized empirical risk assessments to compare profiles of criminogenic risk and need for gang-affiliated and non-gang affiliated juvenile delinquents (Chu et al., 2011).

This study sought to fill this gap in the literature, and determined if youth gang members

¹ Criminogenic risk and needs refer to specific factors in an individual's life that can directly affect their likelihood of re-offending. These factors can then be targeted for change by rehabilitative programming, decreasing risk of re-offense (Andrews & Bonta, 2006). This is a key facet of the RNR model, which will be further discussed in future sections.

involved with the juvenile justice system have criminogenic risk and needs that are unique compared to other juvenile offenders using a structured empirically-based risk assessment, the Youth Level of Service/Case Management Inventory (YLS/CMI). Furthermore, the impact of gang affiliation on risk of re-offense and official recidivism was explored; as well as the effect of gang affiliation on the ability of an empirical risk assessment to predict recidivism. Specifically, the possibility that gang involvement leads to elevated criminogenic profiles, risk of recidivism, and official recidivism rates even in comparison to other youth offenders was evaluated.

CHAPTER 2. Literature Review

2.1 The Risk-Needs-Responsivity Model of Offender Rehabilitation

The Concept of the Risk-Needs-Responsivity (RNR) Model was first circulated by Andrews, Bonta, & Hoge, in 1990 as part of the ground-breaking article *Classification for Effective Rehabilitation – Rediscovering Psychology* (Andrews & Bonta, 2010, Andrews, Bonta, & Wormith, 2011; Taxman & Marlowe, 2006). Based on research demonstrating a link between certain personal and situational characteristics and criminal recidivism, Andrews & Bonta (1990) posited that offenders could be classified and referred to specific correctional or rehabilitative services based on specific characteristics they displayed. Four principles based on this idea were developed: risk, need, responsivity, and professional override (Andrews & Bonta, 1990, 2010). The *risk principle* attests that the intensity of programming or service an offender completes should be based on their level of recidivism risk; in other words - those with high levels of risk will require intensive services, while those with low levels of risk will require minimal intervention (Andrews & Bonta, 1990, 2010). This principle also states that offenders with differing levels of risk should be separated from each other, as exposing low-risk offenders to high risk can increase risk of re-offense for low-risk youth (see Hennigan and Maxson YFAM Evaluation as evidence). The *need principle* states that in order to be rehabilitative (in other words – create a reduction in recidivism risk) offender services should address areas in an offender’s life shown empirically to be related to criminal behavior (Andrews & Bonta, 1990, 2010). These areas are usually called criminogenic needs (but can also be referred to as dynamic risk) and addressing them is essential to creating a reduction in recidivism. The *responsivity principle* maintains that services must be appropriate for the offender in relation to their individual differences (Andrews & Bonta, 2010). Additionally, it recognizes that non-

criminogenic characteristics (such as gender, mental health needs, etc.) may still be important regarding service delivery (Andrews, Bonta, & Hoge, 1990; Andrews & Bonta, 2010; Andrews, Bonta, & Wormith, 2011). The last principle, *professional override*, simply acknowledged that each principle should be applied on a case-by-case basis and should be incorporated as deemed appropriate for each situation by a professional (Andrews & Bonta, 1990).

The RNR Model is under the overarching umbrella of the theory of the psychology of criminal conduct (Andrews, Bonta, & Hoge, 1990), which is based on a social learning theory perspective. This perspective assumes that criminality is learned within a social environment; and that the presence of criminal history, certain antisocial personality traits (such as egocentrism, impulsiveness, and thrill-seeking), and social context favorable to crime are important in the development of criminality (Andrews & Bonta, 2010). Other important factors that contribute to criminality under this perspective are family and marital function, substance abuse, and a lack of social achievement (for example: low educational attainment or employment status). These characteristics, conceptualized as *risk factors*, can be individual or environmental; and when combined they increase the likelihood that an individual will commit a future crime (Andrews & Bonta, 2010). This theory also identifies risk factors that exist for repeat offenders but not for one-time offenders.

The RNR principles and the conceptual framework behind them have become widely used as a basis for correctional programming in recent decades (Taxman & Marlowe, 2006). With its increased use in correctional systems have also come evaluations of its effectiveness in accomplishing its purported purpose – reducing risk of recidivism. Empirical support has been found for the RNR model's claim that following the risk, need, and responsivity principles for offender classification and programming decisions can decrease risk of re-offense (Andrews &

Bonta, 2006; Andrews & Bonta, 2010, Latessa, Listwan, & Koetzle, 2014). Consequently, the RNR model has become accepted as an effective basis for offender programming (Papp, Campbell, Onifade, Anderson, Davidson, & Foster, 2016).

2.2 Risk Assessment

In order for the risk principle discussed by Andrews & Bonta to be successfully applied, a valid and reliable assessment of risk must be used to classify an offender's risk of re-offense (Andrews & Bonta, 2010). Since empirical evidence shows that actuarial risk assessments can predict an offender's risk of re-offense better than clinical judgement (Andrews, Bonta, & Wormith, 2006; Hanson & Morton-Bourgon, 2009), it is encouraged that researchers and practitioners utilize actuarial risk assessments to classify an offender's level of risk. Many actuarial assessments have been developed and deemed effective to assess risk of re-offense. These assessment tools have evolved over time as research expands knowledge regarding the best predictors of recidivism, thus they are usually described in terms of generations.

The first generation of risk assessments were largely based on professional judgements gleaned from intuition and correctional experience; whereas second generation tools were based on research, but lacked a theoretical structure and the inclusion of dynamic factors (criminogenic needs) (Andrews, Bonta, & Wormith, 2006; Brennan, Dieterich, & Ehret, 2009). In comparison, third generation risk assessments included both an empirical and theoretical basis, and included dynamic items (Andrews et al., 2006; Brennan et al., 2009). Currently, many correctional systems utilize fourth generation risk assessments, which incorporate an improved case management component in addition to risk and need assessment items; and address responsivity factors as well as items of risk and need. Furthermore, fourth generation risk assessment helps direct practitioners to track case outcomes, and to link these with results from risk assessment.

This allows practitioners to more easily incorporate risk assessments with case management information systems, and encourages observance to guidelines for effective treatment (Andrews et al., 2006; Brennan et al., 2009).

2.3 Risk Assessment & the RNR Model with Offender Subtypes

Scholars attest that the RNR model can be generalized to both male and female offenders, with different ethnic backgrounds in a variety of settings (Andrews & Bonta, 2010). However, research has also recognized that a single method of risk assessment is not applicable to all subtypes of offenders because certain subtypes of offenders may demonstrate unique patterns or characteristics of criminogenic risk and need not shared within the general criminal population (Papp et al., 2016). Even the creators of the RNR Model caution against applying RNR programming without taking each offender's individual differences into account, in a "one-size-fits-all" approach (Andrews, Bonta, & Wormith, 2011, p. 746). Consequently, it is possible that certain offender subtypes may have unique patterns of risk and needs. This could affect prediction of recidivism for these sub-types by a risk assessment tool, and potentially require specific risk assessments to be utilized for sub-populations that address special needs and risks. Researchers have examined this possibility with a variety of offender subtypes in both adult and juvenile populations; including offenders with sexual offenses (Hanson & Morton-Bourgon, 2009), long-term incarceration (Manchak, Skeem, & Douglas, 2008), and substance-abuse issues (Papp et al., 2016). Their goal is to identify if application of the RNR model and criminogenic risk factors identified as important for all offenders also work well for these special populations. These concerns are relevant for gang-involved juveniles, as research has demonstrated that important differences exist between gang and non-gang youth offenders (O'Brien, Daffern, Chu, & Thomas, 2013). Consequently, it could be the case that gang and non-gang involved

delinquents have differing patterns of criminogenic risk and need from general youth offenders. These differences could necessitate differential treatment of gang-involved offenders by the juvenile justice system, or the use of special risk assessments when predicting re-offense or considering correctional programming for gang-involved offenders. It is important to investigate these possibilities empirically to determine if such differences exist, especially within the context of a rehabilitative model already shown to be effective with general youth offenders. However, previous research specifically examining these matters is limited. The status of the scientific literature regarding these topics is discussed in the following section.

2.4 Review of Existing Research on the Criminogenic Risk and Needs of Gang-Affiliated Youth Offenders; and the Relationship of Gang-Affiliation, Delinquency, and Recidivism

The goal of this review was to identify recent empirical studies that explored criminogenic risks and needs of gang-affiliated youth offenders and the relationship between gang affiliation, juvenile delinquency, and recidivism. Relevant articles were identified through searching several academic electronic databases (ProQuest, World of Science, and Google Scholar) for studies published during the last decade (2006-2017) using specific search terms. These search terms included: risk factor, criminogenic needs, criminogenic risk, risk assessment, risk-needs-responsivity, Youth Level of Service/Case Management Inventory (YLS/CMI), delinquency, and recidivism. Each search term was also combined with either gang or youth gang to increase the relevancy of the results found to this study. This search returned 702 articles, which were narrowed down by excluding any studies that did not meet the following criteria:

- 1) Results and/or Implications applicable to individuals in the United States

- 2) Focused on characteristics of juvenile offenders, or included implications that could potentially be applicable for juveniles
- 3) Peer-reviewed
- 4) Published during the past decade (2006-2017) – with an exception for groundbreaking works (e.g. highly cited throughout recent literature) or where literature inside this timeframe regarding the topic was lacking
- 5) Primary topic involved gang membership and delinquency, recidivism, risk assessment, correctional rehabilitation, or criminogenic need

Excluding articles that did not meet these criteria led to a list of 59 articles identified for review. These articles were then examined and any articles that did not specifically relate to gang membership in the context above (for example: primarily examined victimization, gang prevention, motivations for joining a gang, etc.), only examined specific subtypes of gang membership (for example: prison gangs, gang-involved homeless youth, organized criminals, etc.), or discussed factors that are not included in this study (for example: risky sexual behavior) were excluded; resulting in a list of 33 articles to be examined. These articles were then examined for any references that may have been missed in the original search. This yielded an additional six articles that met the above criteria, resulting in a final count of 39 articles that were examined for the following review.

2.4.1 The effects of youth gang involvement on delinquency and adult functioning.

Previous research has demonstrated that gang-involved youth are disproportionately involved in delinquency (Dong & Krohn, 2016), and that gang membership can facilitate or amplify criminal involvement (Decker, Katz, & Webb, 2008; Melde & Esbensen, 2011). A strong relationship between gang membership and offending has been found across a variety of decades, countries,

and measures of criminal involvement; even when accounting for differing racial and gender divisions, and definitions of gang membership (Krohn & Thornberry, 2008). The reasoning behind this relationship has been the subject of a wealth of empirical research. One area of debate has considered if the relationship between gang affiliation and delinquency can be explained by the robust relationship that also exists between delinquent peer association and delinquency. Considering that many gangs are made up of delinquent individuals, belonging to a gang would likely increase an individual's level of delinquent peer association, which has been previously shown to have a criminogenic effect (Decker, Melde, & Pyrooz, 2013; Krohn & Thornberry, 2008; Thornberry, Krohn, Lizotte, Smith, & Tobin, 2003). This question is particularly pertinent to the present study, as it concerns a factor shown to have a robust criminogenic effect (delinquent peer association) that is often utilized in risk assessment. It also examines the question of if gang-involved youth have unique characteristics related to delinquency beyond those that have criminogenic effects in non-gang youth.

The most recent research regarding this question was conducted by Dong & Krohn in a 2016 study. Utilizing longitudinal data, this study examined the impact of gang membership and perceived delinquent peer association on delinquency during adolescence, as well as the long-term consequences of these two variables over time. Their results indicated that, while some overlap does exist, gang membership and delinquent peer association likely represent separate concepts that function differently in youth's lives. Specifically, gang membership accounted for more serious offending and arrest, especially violent offending, beyond the impact of associating with delinquent peers; whereas delinquent peer association appears to be more related to low-level offending than gang involvement does. This result was especially true for individuals who joined youth gangs in early vs. late adolescence. These results were consistent with previous

research, which has indicated increased involvement of gang-involved youth in serious delinquent acts (Melde, Esbensen, & Taylor, 2009; Melde & Esbensen, 2012; Pyrooz & Decker, 2012). This empirical evidence supports the idea that belonging to a gang has unique effects on an individual's life even in comparison to other criminogenic factors, and that gang-involved youth may have unique rehabilitative obstacles and needs.

There is also empirical evidence that youth gang involvement has a unique effect on an individual's later adult functioning. For example, Dong & Krohn (2016) suggested that being a gang member makes it less likely that an adolescent will make a successful transition to adulthood, even when considering other variations of criminogenic risk (e.g. high levels of delinquent peer association). Likewise, a study by Krohn et al. (2011) found that adolescent gang involvement had a harmful effect on conventional measures of adult success (e.g. ability to be economically successful, live independently, develop stable adult relationships, etc.), and was related to adult involvement in street crime and increased likelihood of arrest as an adult. These findings illustrate the importance of intervening early in the lives of gang members to reduce further criminal acts and decrease long-term negative individual consequences of gang membership, a sentiment that has been echoed by many researchers (Boxer, Kubik, Ostermann, & Veysey, 2015; Chu et al., 2011; Dong & Krohn, 2016; Krohn et al., 2011; Pyrooz, 2014b; Thornberry et al., 2003). Adolescence, the age range of many individuals served by the juvenile justice system, is deemed especially important for intervention (Dong & Krohn, 2016; Krohn et al., 2011).

Conclusions from this research indicate that gang-involved youth are distinct from non-gang youth. They also show that gang-affiliated youth will likely engage in elevated levels of delinquency, and therefore have a high potential to become involved with the juvenile justice

system. Given the negative short and long-term consequences of gang affiliation shown empirically, it is important to ensure that intervention strategies currently utilized by juvenile justice practitioners are appropriate and effective for gang-involved youth offenders.

2.4.2 Gang-involved youth offenders & recidivism. Although a wealth of literature exists regarding youth gang members and their non-delinquent peers, comparisons of gang and non-gang youth offenders appear to be limited in the empirical scientific literature. A small number of studies do exist for review that have examined differences between these two groups specifically among youth offenders, but their results appear to be mixed.

A series of studies utilizing the same sample of 165 male youth offenders from Singapore is one of the first to examine the criminogenic needs of youth gang offenders and their implications for correctional treatment (Chu et al., 2011; Chu et al., 2012; Chu et al., 2014; Chu et al., 2015). To the best of the authors' knowledge, these are indeed the only studies which have considered the criminogenic needs, risk of recidivism, and actual recidivism of gang vs. non-gang *youth* offenders using risk assessment. These studies included comparisons of criminogenic need, risk of recidivism, and personal histories of gang and non-gang youth offenders using two structured risk assessments, the YLS/CMI and the SAVRY (Structured Assessment of Violence Risk in Youth). The 2012 study from this series found a significant relationship between gang affiliation and criminal recidivism, both general and violent, within a three-year period. Furthermore, gang-affiliated offenders not only recidivated more often, they also recidivated more immediately after sentencing than non-gang offenders (Chu et al., 2012).

The implications of this study are important, and seem to point towards a need for rehabilitative efforts targeted specifically at youth gang offenders. However, this study utilized an international sample; 165 male youth (ages 12-18) charged and convicted of criminal offenses

in Singapore between 2004 and 2005. Therefore, the applicability of these results may be limited to the population of interest in the current study (gang and non-gang juvenile offenders within the US). However, some older, US-based studies, have reached the same conclusions. Research conducted by Lattimore et al. (2004) also found that gang-involved youth parolees were arrested more frequently relative to non-gang involved youth, although this was not the primary focus of their study. Similarly, research by Trulson et al. (2005), found that male gang members were more likely to recidivate and to persistently re-offend. However, these results were conducted only with a sample of institutionalized delinquents and the results did not apply to females in this study. In contrast, research by Schram & Gaines (2008) conducted with a population of female youth probationers, reached the opposite conclusion. Gang membership was not found to be significantly related to likelihood of re-arrest. However, the authors note that this could be due to issues identifying gang-affiliated participants or to their identified gang-involved participants having limited involvement in gang life.

Given the inconsistent results and methodological issues illustrated by these studies, more investigation is needed regarding the relationship between recidivism and gang membership in youth offenders, especially in comparison to other juvenile delinquents. This study aimed to examine this issue and draw conclusions about the relationship of recidivism, risk of recidivism, and gang membership. Considering the aim of many justice system intervention strategies (including the RNR Model) is to reduce recidivism, these conclusions will be important for juvenile justice practitioners and could inform future rehabilitation or intervention efforts with gang-involved youth offenders.

2.4.3 Criminogenic needs and the RNR model with gang-involved youth offenders.

A substantial amount of research has focused on risk and protective factors related to identifying

youth at risk for gang membership, gang joining, desistance from a gang, and comparisons of gang-involved youth with non-delinquent peers. However, these topics were outside the scope of the present study. Consequently, this section will review risk factors associated with gang membership only as they relate to criminogenic need (i.e. dynamic risk factors), and as compared to already delinquent youth. This section also aims to illustrate previous findings regarding the applicability of the RNR Model for gang-involved youth offenders. The few studies that have explored these areas were conducted with international samples and/or gang-involved adults. Therefore, replication of their findings with both a juvenile and US-based sample (as this study would be) would be an important step forward.

The 2012 study from the Singaporean series discussed in the previous section specifically compared risk of recidivism (e.g. total scores on the YLS/CMI and SAVRY), actual recidivism, and personal histories of gang and non-gang youth offenders (Chu et al, 2012). This study has also been outlined above, as it included a recidivism component. Results indicated that gang-involved youth were more likely to have histories of violence, substance use, and weapons use (Chu et al., 2012). Additionally, gang-involved youth scored significantly higher on both the YLS/CMI and SAVRY assessments, indicating a significantly higher risk of general and violent re-offense than non-gang individuals (Chu et al., 2012). As discussed above, the study further showed that these predictions seemed to be correct, as gang-involved youth were indeed more likely to engage in both violent and general re-offense than non-gang youth during follow-up periods (Chu et al., 2012). In comparison, the 2011 study in this series compared scores of criminogenic risks and need for gang and non-gang offenders using scores from each domain on the SAVRY vs. YLS/CMI. Results from this study indicated only one statistically significant

difference across criminogenic domains between gang and non-gang youth offenders; gang-involved youth scored higher on domains of peer delinquency (Chu et al., 2011).

Considering the elevation effect of gang membership on delinquency, and the fact that the nature of gang membership requires an individual to associate with peers, the findings regarding peer delinquency are not surprising. However, the other results seem counterintuitive, as gang-involved youth appear to have higher overall levels of criminogenic need (considering their higher overall scores on the YLS/CMI and SAVRY), and recidivate at higher rates than non-gang youth offenders, yet individual domains of criminogenic need show no differences between the two groups other than in peer delinquency. Given these findings, the authors offer the explanation that potentially the risk assessments utilized were not sensitive enough to the unique needs of gang-involved youth to detect the forces driving the increased recidivism rate and overall risk of re-offense among gang-affiliated offenders (Chu et al., 2011). If this is true, it could suggest that specific risk assessment tools should be developed to gauge the unique criminogenic needs of gang-involved offenders and allow them to be targeted in intervention to lower their elevated risk of recidivism. Further investigation into this question with a larger, more diverse sample of youth offenders is warranted to explore this possibility, which the current study sought to accomplish.

Although the applicability of the RNR Model with gang-involved youth offenders has not yet been tested, it has been tested with gang-involved adult offenders in an institutional setting. Research by Di Placido, et al. (2006) examined the impact of rehabilitation programs based on the principles of the RNR Model on recidivism and institutional misconduct for gang and non-gang adult male offenders using matched comparison groups. This study found that treatment based in the RNR Model significantly reduced both violent and general recidivism after release

and major institutional infractions (e.g. fights, assaults, etc.) among gang members. Furthermore, when treated gang members did recidivate, their first re-offense was less serious. The researchers concluded that treatment following the RNR principles can reduce community and institutional gang violence and re-offense (Di Placido, Simon, Witte, Gu, & Wong, 2006). It should be noted that in order for this type of programming to occur with gang-involved youth offenders, it must be demonstrated that their unique criminogenic needs are able to be identified, as required by the needs principle of the RNR Model. However, the previous research outlined by Chu et al (2011, 2012) indicated that limitations currently exist regarding the identification of these needs in gang-involved youth offenders. This study sought to address these topics using a larger, more diverse, gender-inclusive sample.

2.5 The Current Study

The purpose of the current study is to compare the criminogenic needs, risk of recidivism, and actual recidivism of gang and non-gang-affiliated youth offenders using a structured risk assessment tool and official recidivism. The structured risk assessment tool utilized to capture individual criminogenic risk and needs and risk of recidivism is the Youth Level of Service Case Management Inventory (YLS/CMI). Court records will be utilized to capture the occurrence of recidivism. Specifically, this study investigated the following main research questions²:

1. Is each factor below significantly higher for gang-affiliated youth than for non-gang affiliated youth?

² Prior to examining the research questions below, this study compared two gang status categories found within the raw data, “Yes” and “Suspected” across a variety of different characteristics. The purpose of these preliminary analyses was to determine if these two categories could be collapsed into a single category representing all gang-affiliated youth offenders. These analyses, their reasoning, and outcomes will be discussed in more detail in the Methods and Results section.

- a) Scores of Criminogenic Need (Operationalized by scores for each of the eight domains on the YLS/CMI³)
 - b) Risk of Recidivism (Operationalized by overall risk score on the YLS/CMI³)
 - c) two-year recidivism
2. Does gang status moderate the relationship between the predictive validity of the YLS/CMI³ and recidivism?

2.5.1 Significance of the current study. This study will add to the current body of research regarding risk assessment for juvenile offending by evaluating if gang-involved juvenile offenders have unique profiles of criminogenic need. Additionally, it will explore the effect of gang involvement on risk of recidivism and official recidivism among youth offenders. These questions are important for several reasons.

Prior research illustrates that sub-populations of juvenile offenders may have unique criminogenic needs, risk of recidivism, and recidivism rates as compared to other juvenile offenders. However, the possibility that gang-involved juvenile offenders have unique profiles of criminogenic risk and need has not yet been thoroughly investigated. Thus, the available scientific literature is incomplete in its examination of the effect of gang involvement on youth offenders. The limited studies that do exist have produced mixed results, thus the topic requires further investigation to make generalizations regarding the impact of gang involvement on youth offenders; especially its relationship to risk of recidivism and official recidivism. This study provided clarification on this topic. The author hypothesized that gang-involvement in youth offenders should lead to elevated levels of risk of recidivism and rates of official recidivism.

³ The Youth Level of Service/Case Management Inventory (YLS/CMI) is an actuarial risk assessment designed to predict recidivism. It is a key measure in this study and will be discussed in more detail in the Measures subsection of the Methods section. The contents of the YLS/CMI are also included in Appendix A.

Additionally, the criminogenic needs of youth gang offenders have only been evaluated thus far using an international (Singaporean) all-male sample. As this study uses a more diverse (e.g. gender and ethnic inclusive) sample from the United States, it examined the applicability of these international findings to the United States. If these international findings can be replicated, it would provide support for their ability to be generalized to youth offenders universally. Furthermore, although the studies with this international sample found that overall risk of recidivism and rates of official recidivism are significantly impacted by gang membership, individual domains of criminogenic needs appeared to be unaffected. However, RNR Theory and findings from previous research assert that the presence of elevated levels of criminogenic needs should be the driving force behind increased risk of recidivism. If increased levels of criminogenic need were not detected among youth gang members in this study, despite elevated levels of recidivism risk and rates of recidivism, this could mean that current risk assessments are not sensitive enough to capture the criminogenic needs of gang-involved youth offenders. If this were the case, it could necessitate the development of risk assessment tools specifically designed to capture the criminogenic needs of gang-involved juveniles.

The current study therefore re-examined the effect of gang involvement on areas of criminogenic need as well as risk of recidivism, and official recidivism. If findings from the Singaporean sample were replicated exactly, it would have provided evidence that current risk assessments are indeed ineffective in capturing the criminogenic needs of gang-involved youth. However, if, as the author hypothesized, this study found that gang involvement is significantly related to scores of criminogenic needs (in addition to risk of recidivism and actual recidivism rates), the results would suggest that current risk assessment tools are sufficient for use with gang-involved juvenile offenders. Furthermore, such results would support the use of the RNR

Model with gang-involved juvenile as an appropriate practice in juvenile corrections. Similarly, this study examined if gang status moderated the predictive validity of a commonly utilized risk assessment tool, the YLS/CMI, on recidivism. This analysis will also draw conclusions regarding the appropriateness of modern risk assessment and the RNR Model with gang-involved youth offenders.

CHAPTER 3. Methods

3.1 Setting

This study took place in a medium-sized Mid-western juvenile court with three main divisions: Intake, Truancy, and Delinquency. Youth involved with the delinquency division are referred to the court system after being adjudicated for commission of a crime. Delinquent youth are assigned to a judge in addition to a juvenile court officer and may be required to complete one or more programs under court supervision. Youth in the truancy division are referred to court after being absent from school for 10 hours or more during an academic semester. These youths are assigned a juvenile court officer responsible for ensuring improvement in their school attendance. The intake division of the court system is also known as the informal probation division (Campbell, Onifade, Barnes, Peterson, Anderson, Davidson, & Gordon, 2014). This division is responsible for screening all offenders that commit a delinquent act and subsequently encounter the court to determine which cases should be formally processed. In other words, this division decides which cases are referred to the delinquency division where cases are overseen by a judge. Youth who are deemed to be at low risk of recidivating are kept in the informal probation division, while others are referred.

Gang-status is not collected for youth in the intake division by this court system, due to the extremely low-risk nature of the youth kept there. Although gang status is collected for youth in the truancy division, since those youth have not technically committed a juvenile offense (they are simply truant from school), only youth from the delinquency division were included in the present study.

3.2 Sample

This study utilized anonymous archival risk assessment and recidivism data of youth involved in the delinquency division of the juvenile court system specified above between January 2010 and February 2015. This data was made available as part of an on-going partnership between Michigan State University and the aforementioned court system. Gang status began to be collected on youth in January of 2010, thus the earliest data in this sample are from that time. The latest data utilized include youth involved with this court system through February 2015, which allowed for a minimum of two years follow-up to ascertain official recidivism for the youth included in this study. The final sample consisted of 487 youth. Table 1 shows a breakdown of the sample's demographic characteristics.

Table 1. Sample demographic characteristics

	N	Percentage of Total Sample	
<i>Gender</i>			
Male	351	72.1	
Female	136	27.9	
<i>Ethnicity*</i>			
Caucasian	144	29.6	
African-American	207	42.5	
Hispanic	23	4.7	
Mixed Race/Other	107	22.0	
<i>Crime Type*</i>			
Person	164	33.7	
Property	206	42.3	
Sex	37	7.6	
Weapon/Drug	36	7.4	
Status/Public Ordinance/Other	29	6.0	
	Average	Minimum	Maximum
<i>Age</i>	15.4	10	18
<i>Educational Level*</i>	8.9	4	12
<p><i>*Missing cases existed for crime type(n=15), education(n=13), and ethnicity(n=6). These cases were excluded from analyses.</i></p>			

3.3 Measures

3.3.1 The Youth Level of Service/Case Management Inventory (YLS/CMI).

For this study, criminogenic risks and needs are measured using the Youth Level of Service/Case Management Inventory (YLS/CMI) (Hoge & Andrews, 2002). Adopted from an adult risk assessment tool, the Level of Service Inventory-Revised (LSI-R), the YLS/CMI was developed to predict general re-offense for youth offenders between the ages of 12-18. It includes 42 items across eight domains that have been shown to be consistently associated with juvenile recidivism. For reference, Appendix A includes the 42 items on the YLS/CMI used in this study. Its eight domains include: Prior/Current Offenses (5 items), Education (6 items), Leisure & Recreation (3 items), Peer Relationships (4 items), Substance Abuse (5 items), Family Circumstances (6 items), Attitudes & Orientation (5 items), and Personality (7 items). Alpha coefficients for the items on each domain range between 0.67-0.79, well within the acceptable range (Onifade, Davidson, Campbell, Turke, Malinowski, & Turner, 2008).

Since its development, the YLS/CMI has become a widely utilized and investigated risk assessment tool in juvenile correctional systems, and has been shown to be a reliable and valid predictor of juvenile recidivism (Thompson & McGrath, 2012; Onifade et al., 2008; Schmidt, Campbell, & Houlding, 2011; Schwalbe, 2007). Items on each domain were developed to represent factors of criminogenic risk shown to be strongly related to initial delinquency (Andrews & Bonta, 1990), and are scored as yes or no with a score of one for the item equating to the risk measured in that item being present and a zero indicating its absence. Overall risk on the YLS/CMI is measured in a variety of different ways. Total scores for each domain and total score across all domains (e.g. a total score for the entire assessment) are created by adding up scores for each item and then converting that total to a level of risk. Risk levels include low

(scores 0-8), medium (scores 9-22), and high (scores 23-42). This study will utilize scores on each domain to examine patterns of criminogenic risk and need, and overall YLS/CMI scores to examine risk of re-offense for the young offenders examined in this study.

3.3.2 Gang status. Beginning in 2010, the court in this study began to collect information regarding the gang status of the youth they served. Each youth received a gang status of yes, suspected, no, or do not know. This status was determined by each youth's juvenile court officer during administration of the Youth Level of Service/Case Management Inventory. To receive a status of yes, youth must have been known gang members to court personnel, or self-reported as being gang involved. In contrast, youth were given a status of suspected when court personnel believed them to likely be gang involved based on their interactions with and observations of the youth (for example: the youth's posts on Facebook, specific colors worn, tattoos, etc.), but the youth did not report being gang-involved. Youth who did not self-identify as a gang member or were not suspected of being in a gang were given a status of no. Youth whose juvenile court officers did not feel comfortable assigning a gang status were given a status of do not know. Youth with a gang status of do not know will not be included in the current study and were dropped from the final dataset. Table 2 shows a breakdown of the included categories for the sample utilized in this study.

Table 2. Distribution of included gang categories

	N	Percentage of Total Sample
<i>Yes</i>	47	9.7
<i>Suspected</i>	35	7.2
<i>No</i>	405	83.2
Total	487	100.0

3.3.3 Recidivism. Recidivism was the main dependent variable for this study. It was defined as any new court petition (or petitions) received within two years following the date of the first administration of the YLS/CMI. This variable was coded dichotomously to reflect if at least one new petition is present (1) or no new petition is present (0) during this time-period. Recidivism data was collected by court personnel through the data management system used by the court setting for this study. For juvenile offenders who age out of the juvenile court system during this two-year period, recidivism was calculated by utilizing both adult and juvenile court records. Approximately 42.3% of the sample ($n=206$) were classified as re-offenders.

3.4 Procedure

The YLS/CMI data collected for this study was administered by trained juvenile justice practitioners via semi-structured interviews with youth under court supervision and (if possible) their primary caretaker. Before being able to administer the assessment, these practitioners received 36 hours of training on proper procedure for administering and scoring the YLS/CMI. This training included the history of the YLS/CMI, discussion of difficult cases and scoring procedure, scoring pre-taped cases, mock interviews, and clarifying any questions or definitions practitioners are unsure of. Inter-rater reliability is also conducted every six months for the YLS/CMI and has consistently reached >90%. The last inter-rater reliability calculated in March 2017 reached 97% exact agreement among the 30 juvenile court officers trained to administer the YLS/CMI. Data for this study was collected by these trained practitioners for court records and case planning, and later released to the researcher for inclusion in this study.

CHAPTER 4. Results

4.1 Gang Involved vs. Non-Gang Involved Youth

Prior to analyzing the research questions directly, descriptive statistics for youth in each of the included gang status categories (yes, suspected, and no) were examined. The results of these analyses are listed below in Table 3. They show that the majority of youth in each category were male, African-American, average age 15 (range 10-18, standard deviation=1.38), average grade 9, were convicted of a property offense, had an average total risk score of about 15, and did not recidivate. However, there was a significantly higher distribution of mixed race youth in the yes category. This difference in ethnicity distribution existed even though the distribution of the other demographic categories (e.g. age, education, gender) across yes, suspected, and no youth remained relatively consistent.

Table 3. Sample demographic characteristics by gang category

	Yes (N=47)	Suspected (N=35)	No (N=405)
	% (N)	%(N)	%(N)
Gender			
Male	11.7 (41)	9.1 (32)	79.2 (278)
Female	4.4 (6)	2.2 (3)	93.4 (127)
Ethnicity*			
Caucasian	2.1 (3)	1.4 (2)	96.5 (139)
African-American	11.1 (23)	13.5 (28)	75.4 (156)
Hispanic	8.7 (2)	8.7 (2)	82.6 (19)
Mixed Race/Other	17.8 (19)	2.8 (3)	79.4 (85)
Crime Type*			
Person	9.1 (15)	4.9 (8)	86.0 (141)
Property	12.6 (26)	10.7 (22)	76.7 (158)
Sex	-	-	100.0 (37)
Weapon/Drug	8.3 (3)	2.8 (1)	88.9 (32)
Status/Public Ordinance/Other	6.9 (2)	10.3 (3)	82.8 (24)
Recidivism			
Yes	10.7 (22)	10.2 (21)	79.1 (163)
No	8.9 (25)	5.0 (14)	86.1 (242)
	<i>M(sd)</i>	<i>M(sd)</i>	<i>M(sd)</i>
Age	15.4 (1.2)	15.1 (2.9)	15.3 (1.6)
Educational Level*	8.8 (0.8)	9.0(1.2)	9.0(1.4)
Total Risk Score	21.5 (4.7)	20.7 (5.1)	15.6 (6.5)
<i>Missing cases were excluded (34 total). There was 1 'Yes' and 1 'Suspected' youth with missing data. The rest were in 'No'.</i>			

Additionally, differential statistics were conducted to test for the presence of significant differences between yes and suspected youth specifically. The goal of these analyses was to determine if significant differences existed for all descriptive categories for yes and suspected youth; with the hope that if the majority of categories yielded no significant differences the yes and suspected answers could be collapsed into a single gang category. Significant differences between yes and suspected youth among age and total risk score were tested using ANOVA and independent t-tests. Differences on gender, ethnicity, and recidivism were examined using Chi Square analyses. The results of these analyses are depicted in Tables 4, 5, and 6. Yes and Suspected youth were not found to significantly differ on any of the tested categories with one exception. A significant Chi Square statistic ($\chi^2=10.8$, $df=3$, $p<0.05$) demonstrated that youth in yes and suspected categories are classified statistically differently based on ethnicity. A post-hoc Phi and Cramer's V test shows the strength of association between ethnicity and gang status to be 0.36, and post-hoc standardized residuals show that mixed race youth are significantly under-represented in the suspected category (standardized residual= -2.1) and nearly significantly over-represented in the yes category (standardized residual= 1.8) when using a 0.05 standardized critical prediction value ($z=1.96$).

Table 4. ANOVA comparison of yes and suspected gang youth

<i>Test Variable</i>	<i>F Statistic</i>	<i>Sig.</i>
Age	0.49	0.78
YLS Total Score	1.24	0.25

Table 5. T-test comparison of yes and suspected gang youth

<i>Test Variable</i>	<i>T-Statistic</i>	<i>df</i>	<i>Sig.</i>
Age	0.53	80	0.60
YLS Total Score	-0.78	80	0.44

Table 6. Chi square comparison of yes and suspected gang youth

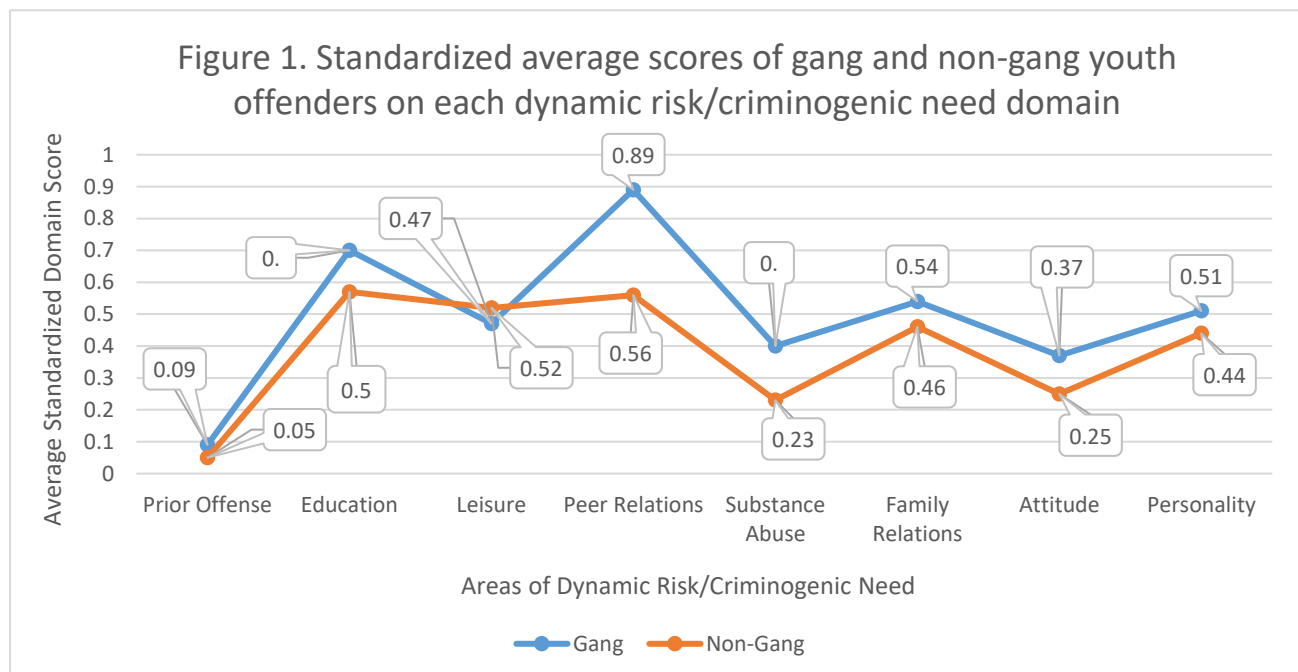
<i>Test Variable</i>	<i>X²</i>	<i>df</i>	<i>Sig.</i>
Gender	0.36	1	0.55
Race/Ethnicity	10.80	3	0.013*
Overall Recidivism	1.40	1	0.24
* $p < 0.05$			

Given the result that there were no significant differences for yes or suspected youth on 4 of the five characteristics tested, the yes and suspected categories were collapsed into a single ‘gang’ category for subsequent analyses. Therefore, the gang status variable tested during the main research questions was binary, with possible classifications of gang and non-gang for each individual. Furthermore, due to the significant relationship determined to exist between ethnicity and gang status, ethnicity was included as a control variable in subsequent analyses.

4.2 Relationship of Criminogenic Needs, Risk of Recidivism, Official Recidivism, and Gang Status

The next set of analyses addressed the research question: *Are dynamic risks, risk of recidivism, and official recidivism significantly higher for gang-affiliated youth than for non-gang affiliated youth?* Separate analyses were used to examine each factor in question (e.g. areas of dynamic risk, risk of recidivism, and official recidivism). For clarity, results for each analysis will be discussed separately in the following sections.

4.2.1 Gang status and areas of criminogenic need. As a reminder, scores on each domain of the YLS/CMI were used to operationalize areas of dynamic risk. These areas include offense history; education, family, and peer environment; leisure activities; substance use; and finally, personality and attitudinal characteristics. The author hypothesized that gang-involved youth offenders may have differential areas of elevated criminogenic needs as compared to non-gang youth offenders. Average scores on each area of dynamic risk for gang and non-gang offenders, standardized on a 0-1 scale, are compared in Figure 1. This preliminary analysis



demonstrated that standardized scores for gang and non-gang youth follow similar patterns in areas of dynamic risk/criminogenic need. However, in seven of the eight areas of dynamic risk gang-involved youth had higher average standardized scores of criminogenic need as compared to non-gang youth.

To examine this relationship further, multi-variate regression was used to determine the direction and effects of the relationship between each area of criminogenic need and gang status. In addition to criminogenic need and gang status (the independent variable); ethnicity, age, and gender were included in each analysis as control variables. Ethnicity was included as a control due to its significant relationship with gang status found in the prior section, while age was included because of its strong relationship with crime established by prior studies. Furthermore, gender was included as a control variable due to the author's finding during the literature review that the majority of prior studies examining gang and non-gang youth offenders utilized exclusively male samples. The results of each multi-variate regression analyses with YLS domain scores (e.g. scores of dynamic risk) as dependent variables can be found in Tables 7-14. Model 1 for each analysis examined the sole effects of gang status on the independent variable in question, while Model 2 added in the included control variables.

Table 7. Multi-variate regression of the effect of gang status and controls on prior offense domain score

	Model 1			Model 2		
<i>Variable</i>	<i>b</i>	<i>SE(b)</i>	β	<i>b</i>	<i>SE(b)</i>	β
Constant	0.168***	0.030		-2.93**	0.251	
Gang Member	0.198**	0.072	0.125	0.193**	0.075	0.122
Age				0.031	0.016	0.088
Female				-0.045	0.061	-0.034
Ethnicity		-	-	-	-	-
Hispanic				0.054	0.133	0.019
African-American				-0.042	0.066	-0.035
Mixed Race/Other				0.075	0.077	0.053
F	7.654**			2.534*		
R ²	0.016			0.031		
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$						

Table 8. Multi-variate regression of the effect of gang status and controls on education domain score

	Model 1			Model 2		
<i>Variable</i>	<i>b</i>	<i>SE(b)</i>	β	<i>b</i>	<i>SE(b)</i>	β
Constant	3.406***	0.086		5.639***	0.723	
Gang Member	0.777***	0.207	0.169	0.786***	0.216	0.171
Age				-0.151***	0.046	-0.148
Female				0.140	0.176	0.036
Ethnicity	-	-	-	-	-	-
Hispanic				-0.226	0.382	-0.028
African-American				0.108	0.190	0.031
Mixed Race/Other				-0.001	0.221	0.000
F	14.022***			4.540***		
R ²	0.028			0.054		
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$						

Table 9. Multi-variate regression of the effect of gang status and controls on leisure domain score

	Model 1			Model 2		
<i>Variable</i>	<i>b</i>	<i>SE(b)</i>	β	<i>b</i>	<i>SE(b)</i>	β
Constant	1.571***	0.040		1.401***	0.336	
Gang Member	0.355***	0.097	0.165	0.442***	0.100	0.205
Age				0.006	0.021	0.013
Female				0.318***	0.082	0.176
Ethnicity	-	-	-	-	-	-
Hispanic				0.032	0.178	0.005
African-American				-0.105	0.089	-0.064
Mixed Race/Other				0.057	0.103	0.029
F	13.393***			5.573***		
R ²	0.027			0.066		
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$						

Table 10. Multi-variate regression of the effect of gang status and controls on peer domain score

	Model 1			Model 2		
<i>Variable</i>	<i>b</i>	<i>SE(b)</i>	β	<i>b</i>	<i>SE(b)</i>	β
Constant	2.271***	0.061		1.362**	0.513	
Gang Member	1.290***	0.148	0.370	1.399***	0.153	0.401
Age				0.053	0.033	0.068
Female				0.397**	0.125	0.136
Ethnicity	-	-	-	-	-	-
Hispanic				0.345	0.271	0.056
African-American				-0.148	0.135	-0.056
Mixed Race/Other				0.094	0.157	0.030
F	75.871***			16.171***		
R ²	0.137			0.170		
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$						

Table 11. Multi-variate regression of the effect of gang status and controls on substance use domain score

	Model 1			Model 2		
<i>Variable</i>	<i>b</i>	<i>SE(b)</i>	β	<i>b</i>	<i>SE(b)</i>	β
Constant	1.179***	0.062		-0.862	0.512	
Gang Member	0.854***	0.151	0.251	0.953***	0.153	0.280
Age				0.143***	0.032	0.189
Female				0.014	0.124	0.005
Ethnicity	-	-	-	-	-	-
Hispanic				0.449	0.271	0.075
African-American				-0.402**	0.135	-0.155
Mixed Race/Other				-0.154	0.157	-0.050
F	32.093***			12.069***		
R ²	0.063			0.133		
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$						

Table 12. Multi-variate regression of the effect of gang status and controls on family domain score

	Model 1			Model 2		
<i>Variable</i>	<i>b</i>	<i>SE(b)</i>	β	<i>b</i>	<i>SE(b)</i>	β
Constant	2.784***	0.084		3.864***	0.697	
Gang Member	0.898***	0.205	0.197	1.009***	0.208	0.221
Age				-0.098*	0.044	-0.096
Female				0.770***	0.170	0.202
Ethnicity	-	-	-	-	-	-
Hispanic				0.363	0.368	0.045
African-American				0.094	0.184	0.027
Mixed Race/Other				0.530*	0.213	0.128
F	19.294***			9.379***		
R ²	0.039			0.106		
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$						

Table 13. Multi-variate regression of the effect of gang status and controls on attitude domain score

	Model 1			Model 2		
<i>Variable</i>	<i>b</i>	<i>SE(b)</i>	β	<i>b</i>	<i>SE(b)</i>	β
Constant	1.226***	0.058		1.140*	0.493	
Gang Member	0.640***	0.141	0.204	0.598***	0.147	0.190
Age				-0.002	0.031	-0.002
Female				0.009	0.120	0.003
Ethnicity	-	-	-	-	-	-
Hispanic				0.561*	0.26	0.101
African-American				0.179	0.130	0.075
Mixed Race/Other				0.048	-.151	0.017
F	20.767***			4.421***		
R ²	0.042			0.053		
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$						

Table 14. Multi-variate regression of the effect of gang status and controls on personality domain score

	Model 1			Model 2		
<i>Variable</i>	<i>b</i>	<i>SE(b)</i>	β	<i>b</i>	<i>SE(b)</i>	β
Constant	3.060***	0.085		5.362***	0.713	
Gang Member	0.501*	0.206	0.111	0.635**	0.213	0.140
Age				- 0.153***	0.045	-0.152
Female				0.396*	0.174	0.104
Ethnicity						
Hispanic				-0.202	0.377	-0.025
African-American				-0.203	0.188	-0.059
Mixed Race/Other				-0.015	0.218	-0.004
F	5.936*			3.972***		
R ²	0.012			0.048		
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$						

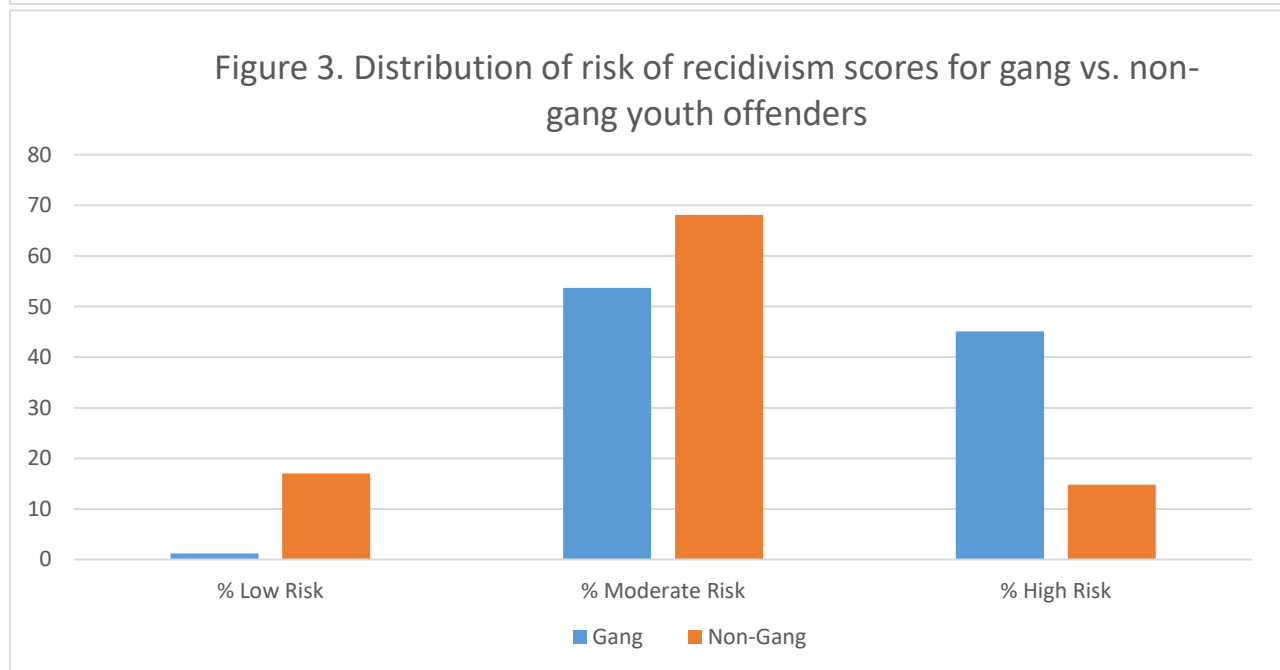
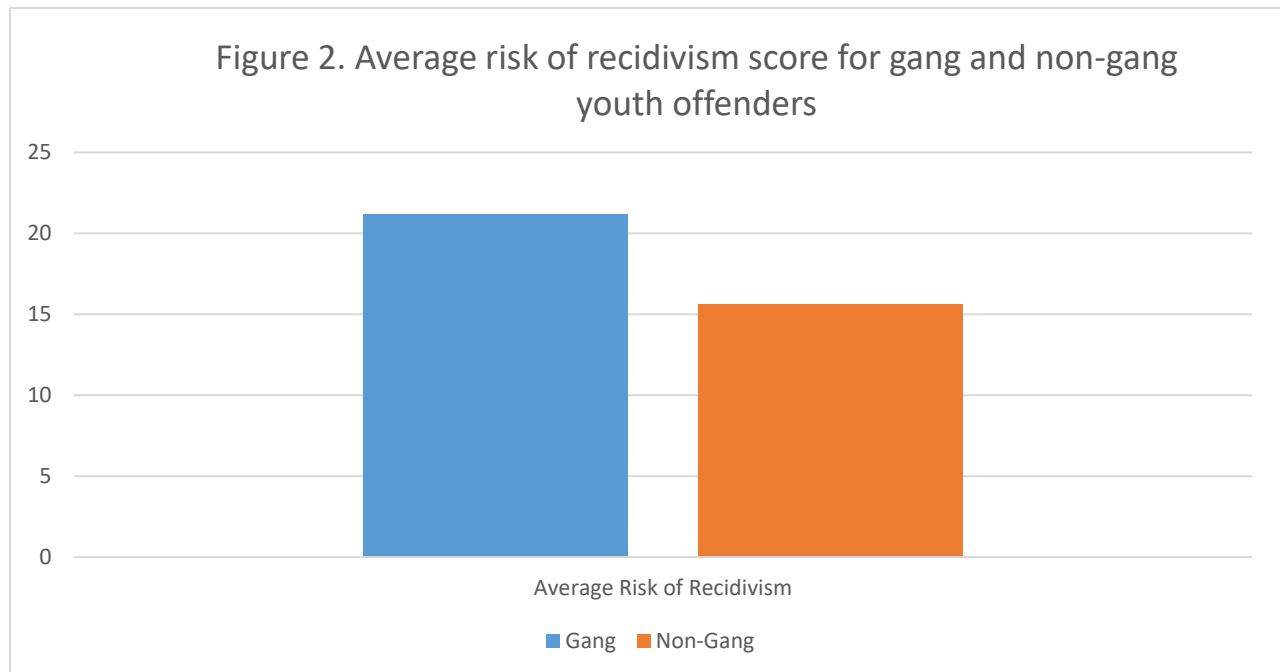
Interestingly, results remained consistent for each type of criminogenic need. Being classified as gang involved was found to have a significant effect on scores of every area of criminogenic need. This effect persisted even when controlling for age, gender (male was used as the reference category), and ethnicity (Caucasian was used as the reference category). Specifically, coefficients reveal that being classified as gang involved was found to significantly increase scores on every domain, even when controlling for all other variables. These findings are contrary to prior research examining scores of dynamic risks with gang vs. non-gang youth

offenders (i.e., justice system involved), which found gang status was not significantly related to scores for any areas of dynamic risk with the exception of peer relationships (Chu et al., 2011).

R^2 values reveal that gang involvement accounted for only a small amount of the variance in each domain score. This was also true when including the selected control variables in the model. Without the control variables, R^2 values ranged from 0.01 to 0.14. Including control variables increased this range only slightly, with R^2 values ranging from 0.01 to 0.17. Unsurprisingly, gang involvement explained the largest amount of variance in the peer relations domain score (0.14 without and 0.17 with controls).

In addition to gang status, all of the control variables included were found to have a significant correlation with at least one of the domains of criminogenic need examined, but this effect was not always consistent. For example, every year increase in age was found to be significantly related to a decrease in scores in the education and family domains, but to significant increases in scores in the substance abuse domain. Similarly, females had significant higher family and personality domain scores as compared to males, but no effect was found for gender on the substance abuse and attitudes domain. The results surrounding ethnicity were also mixed. Compared to Caucasians, being Hispanic was found to significantly increase attitude scores; and those classified as mixed race or other scored significantly higher on the family domain. However, African-Americans scored significantly lower on the substance use domain as compared to Caucasians. No effects were found for ethnicity on any other domains.

4.2.2 Risk of recidivism and gang status. Similarly, to areas of dynamic risk, the author hypothesized that gang-involved youth offenders would demonstrate an elevated risk of recidivism. As a reminder, total score on the YLS/CMI was used to operationalize risk of recidivism. Results from descriptive comparisons of gang and non-gang youth on risk of recidivism are contained in Figure 2 and 3.

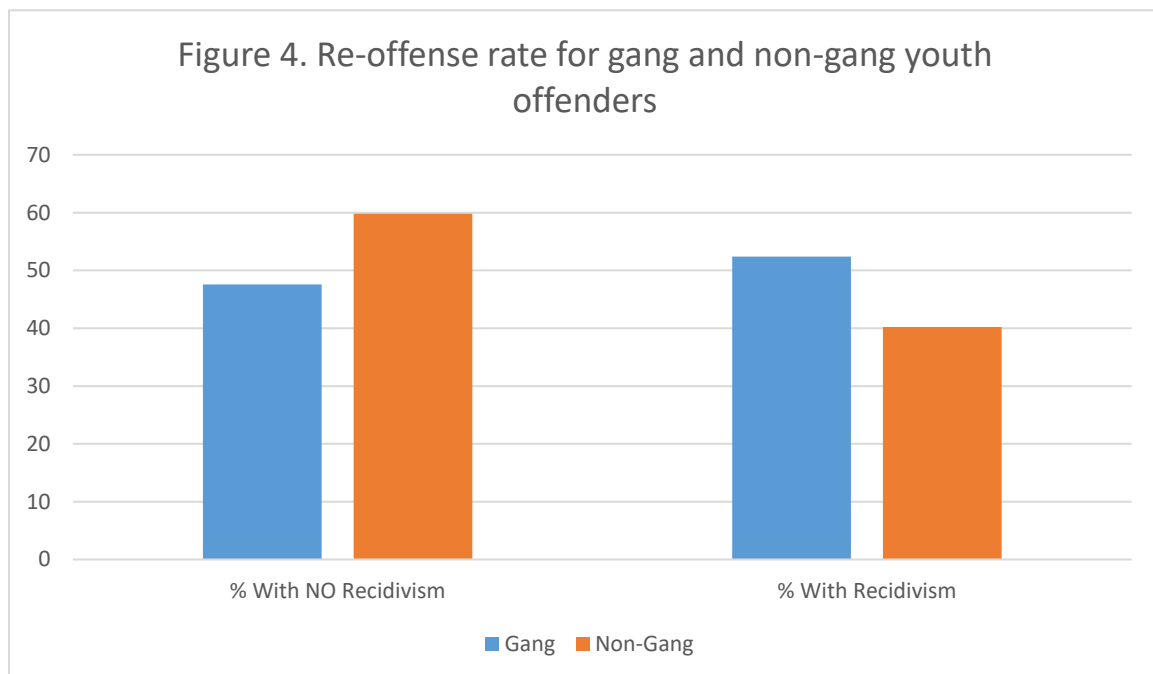


These charts illustrate that gang-involved youth offenders have higher average scores on the YLS/CMI, indicating a higher average risk of recidivism compared to non-gang involved youth offenders. Furthermore, a higher percentage of gang-involved youth offenders scored in the high-risk category than are non-gang youth. To examine this relationship in more depth, a multi-variate regression with total YLS score (e.g. risk of recidivism) as a dependent variable and age, gender, and ethnicity as control variables was performed. Results from this analysis can be found in Table 15.

Table 15. Multi-variate regression of the effect of gang status and controls on total YLS/CMI score

	Model 1			Model 2		
<i>Variable</i>	<i>b</i>	<i>SE(b)</i>	β	<i>b</i>	<i>SE(b)</i>	β
Constant	15.657***	0.313		17.624***	2.637	
Gang Member	5.514***	0.758	0.315	6.015***	0.787	0.344
Age				-0.170	0.167	-0.044
Female				1.998**	0.644	0.137
Ethnicity	-	-	-	-	-	-
Hispanic				1.365	1.395	0.044
African-American				-0.521	0.695	-0.039
Mixed Race/Other				0.635	0.808	0.040
F	52.893***			11.447***		
R ²	0.099			0.127		
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$						

Similarly, to the previous analyses involving areas of dynamic risk, being classified as gang involved was found to be significantly related to an overall risk of recidivism, even when controlling for age, gender, and ethnicity. R^2 values remained small. About 10% of the variance in the total score on the YLS/CMI was found to be due to gang membership without the inclusion of control variables. When controls were added, the amount of variance in total YLS/CMI score accounted for by the model increased to about 13%. Estimates demonstrated that compared to non-gang youth, youth offenders with gang affiliations had a significantly higher risk of recidivism, with youth gang offenders scoring about six points higher when controlling for all other variables. The only other variable found to have a significant effect on total YLS/CMI score was gender. Compared to males, females were found to have a significantly higher YLS/CMI score, with females scoring about two points higher when controlling for all other variables.



4.2.3 Official recidivism and gang status.

As a reminder, a dichotomous recidivism (1=re-offender, 0=non-reoffender) variable based on court records was used to measure official recidivism. Individuals were classified as a re-offender if, according to court records, they were found to have at least one new petition within two years of the first date of administration of the YLS/CMI. The author hypothesized that gang-affiliated youth offenders would have elevated rates of official recidivism. Preliminary analyses examining the relationship between official recidivism and gang status can be found in Figure 4. It shows that a higher percentage of gang-involved youth offenders have re-offenses in the official court data than non-gang involved youth offenders. To further explore this relationship, a logistic regression analysis with recidivism as the dependent variable and gender, age, and ethnicity as controls were conducted. Results from this analysis can be found in Table 16.

Table 16. Logistic regression of the effect of gang status and controls on recidivism

	Model 1			Model 2		
<i>Variable</i>	<i>B</i>	<i>SE(b)</i>	<i>Exp(B)</i>	<i>B</i>	<i>SE(b)</i>	<i>Exp(B)</i>
Constant	- 0.380***	0.102	0.684	1.075	0.934	2.931
Gang Member	0.478*	0.243	1.613	0.417	0.258	1.517
Age				-0.111	0.060	0.895
Female				0.078	0.213	1.081
Ethnicity	-	-	-	-	-	-
Hispanic				-0.298	0.490	0.742
African-American				0.277	0.232	1.319
Mixed Race/Other				0.533*	0.267	1.703
X ²	3.859*			13.833*		
Nagelkerke R ²	0.011			0.038		
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$						

Results from the logistic regression differ slightly in comparison to the previous models. Without the inclusion of controls (Model 1), being gang-affiliated was a significant predictor of recidivism. However, this effect disappeared when controlling for gender, ethnicity, and age. The overall model, which took both gang status and the control variables into account together, remained significant in both cases (Model 1: $x^2 = 3.86$, $p < 0.05$; Model 2: $x^2 = 13.83$, $p < 0.05$). When only gang affiliation was included in the analysis (Model 1), 58.2% of cases were classified correctly, an increase from 57.4% correctly classified in block 0. This percentage increased to 58.6% classified correctly with the inclusion of control variables in Model 2. The p-

value of Model 2 (0.032) also decreased slightly in comparison to Model 1 (0.048). Therefore, although gang status was not a significant predictor of recidivism in Model 2, the inclusion of controls with gang status in Model 2 still predicted recidivism better overall than simply gang status alone. Interestingly, the only variable in Model 2 that exerted a significant effect when controlling for all other variables was being classified as Mixed Race/Other ethnicity. Compared to Caucasian youth offenders, those classified as mixed race had significantly higher recidivism.

4.3 Does Gang Status Affect Prediction on the YLS/CMI?

The next set of analyses addressed the research question: *Does gang status moderate the relationship between the predictive validity of the YLS/CMI (e.g. measures of risk of recidivism) and two-year recidivism?* Risk of recidivism measured by the YLS/CMI was operationalized in two ways: total score and risk level. To examine this question logistic regression was used, with risk of recidivism measurements as independent variables, recidivism as the dependent variable, and gang status as an interaction term. Control variables of age, gender, and ethnicity were once again also included in the model for the reasons specified above. Results from this analysis can be found in Tables 17 and 18. Table 17 illustrates the logistic regression analysis operationalizing risk of recidivism as total YLS/CMI score, while Table 18 illustrates the analysis operationalizing risk of recidivism as risk level on the YLS/CMI.

Table 17. Does gang status moderate the predictive validity of YLS/CMI total score on official recidivism?

	Model 1			Model 2			Model 3		
<i>Variable</i>	<i>B</i>	<i>SE(b)</i>	<i>Exp(B)</i>	<i>B</i>	<i>SE(b)</i>	<i>Exp(B)</i>	<i>B</i>	<i>SE(b)</i>	<i>Exp(B)</i>
YLS Total *							0.04	0.05	1.04
Gang Status									
YLS Total				0.02	0.02	1.02	0.02	0.02	1.50
Gang Status				0.28	0.27	1.32	-0.51	1.06	0.60
Age	-0.11	0.06	0.90	-0.11	0.06	0.90	-0.11	0.06	0.90
Female	0.01	0.21	1.01	0.03	0.22	1.03	0.03	0.22	1.03
Ethnicity	-	-	-	-	-	-	-	-	-
Hispanic	-0.24	0.49	0.79	-0.34	0.49	0.72	-0.36	0.50	0.70
African-American	0.37	0.23	1.44	0.2	0.23	1.34	0.30	0.23	1.35
Mixed Race/Other	0.61*	0.26	1.84	0.52	0.27	1.68	0.53*	0.27	3.88
Constant	1.04	0.92	2.82	0.65	0.97	1.91	0.68	0.97	1.98
X ²	11.22*			16.26*			16.86*		
Negelkerke R ²	0.03			0.05			0.05		
* <i>p</i> <0.05, ** <i>p</i> <0.01, *** <i>p</i> <0.001									

Model 1 involved the inclusion of only control variables as independent variables predicting recidivism outcomes, while Model 3 added an interaction term of total YLS/CMI score and gang status. Model 2 included the direct effects of the variables involved in the interaction terms. All three models were found to be significant predictors of recidivism (Model 1: $\chi^2=11.22$, $p<0.05$; Model 2: $\chi^2=16.26$, $p<0.05$; Model 3: $\chi^2=16.86$, $p<0.05$), but the effects of individual variables were mixed. Although YLS/CMI score has been demonstrated as a significant predictor of recidivism in prior research, it was not a significant predictor for this sample when combined with the chosen control variables (age, gender, and ethnicity). Contrary to the author's hypothesis, gang status was not found to have a moderating effect on prediction of recidivism by YLS/CMI score. The inclusion of the control variables increased correct prediction of recidivism classification from 57.4% in Model 0 to 59.5% in Model 1. The addition of the direct effects of gang status and total risk score in Model 2 did not improve prediction, as the percentage correctly classified in Model 2 was equal to Model 1. However, the addition of the interaction term (gang status by risk score) positively increased the classification of recidivism to 60.1% in Model 3. Therefore, it would appear that the inclusion of gang status and risk score as a moderator variable does improve recidivism prediction as compared to demographic variables alone, even though the effects of this moderation were not found to be significant. In contrast, gang status and risk of recidivism do not appear to directly improve prediction of recidivism better than the chosen control variables. One variable was found to have a significant effect in these analyses. Specifically, compared to Caucasian youth, being mixed race/other was found to have a positive significant impact on recidivism in Models 1 controlling for all other variables.

Table 18. Does gang status moderate the predictive validity of YLS/CMI risk level on official recidivism?

	Model 1			Model 2		
<i>Variable</i>	<i>B</i>	<i>SE(b)</i>	<i>Exp(B)</i>	<i>B</i>	<i>SE(b)</i>	<i>Exp(B)</i>
Moderate Risk * Gang ⁴				0.07	0.34	1.07
High Risk * Gang ⁵				0.72*	0.37	2.07
High Risk * Non-Gang ⁵				-0.06	0.30	0.94
Low Risk*Non-Gang ⁶				-0.43	0.30	0.65
Age	-0.11	0.06	0.90	-0.11	0.06	0.90
Female	0.01	0.21	1.01	0.04	0.22	1.04
Ethnicity	-	-	-	-	-	-
Hispanic	-0.24	-0.49	0.79	-0.32	0.50	0.73
African-American	0.37	0.23	1.44	0.28	0.23	1.33
Mixed Race/Other	0.63*	0.26	1.88	0.53*	0.27	1.70
Constant	1.05	0.92	2.85	1.09	0.95	2.96
X ²	11.56*			18.78*		
Nagelkerke R ²	0.03			0.05		

Prior to conducting analyses, a variable was created that captured both gang status (gang-affiliated, or non-gang affiliated) and YLS/CMI risk level (low, moderate, or high). Youth could

⁴ Moderate Risk*Non-Gang youth were used as a reference category

⁵ Additional analyses did not suggest significant differences regarding recidivism between gang and non-gang high risk youth

⁶ There were no low risk gang-involved youth who recidivated, therefore Low Risk*Gang could not be included in the model.

therefore fall into one of 6 categories: non-gang and low risk, non-gang and moderate risk, non-gang and high risk, gang-affiliated and low risk, gang-affiliated and moderate risk, or gang affiliated and high risk. These variables were used in a logistic regression analysis to examine the effects of gang status and YLS/CMI risk level on recidivism. Due to the categorical nature of the risk/gang variable, dummy variables were used to include each category in the following logistic regression analyses. Moderate risk non-gang youth were selected as the reference category, since the majority of youth in the sample fell into this category.

Model 1 included only control variables (age, gender, ethnicity) as independent predictors of recidivism. Model 2 added in the variable discussed above, which captured both YLS/CMI risk level and gang status. Both models were found to be significant predictors of recidivism (Model 1: $\chi^2=11.56$, $p<0.05$; Model 2: $\chi^2=18.78$, $p<0.05$). Furthermore, the percentage of recidivism correctly classified increased from 57.3% in Model 0 to 59.6% in Model 1 and 60.2% in Model 2. This, along with the significance findings for each Model, suggests that the inclusion of gang status and YLS/CMI risk level improves prediction of recidivism as compared to control variables alone. Only one gang status category was found to have a significant moderation effect on prediction of recidivism. Specifically, the interaction of being both gang affiliated and high risk had a significant effect on prediction of recidivism as compared to non-gang affiliated and moderate-risk. Further analysis did not indicate any significant differences existed between high risk non-gang and gang-affiliated youth, which makes this finding quite interesting.

It should be noted that there are no low-risk gang-affiliated youth who recidivated in the sample used for this study, so the moderation effect of gang involvement for low risk youth was not able to be examined in this analysis. Other than the interaction between high risk and gang

status, one other variable was found to have a significant effect. Compared to Caucasian youth, being mixed race/other was found to have a positive significant impact on recidivism in both models controlling for all other variables.

CHAPTER 5. Discussion

A substantial amount of literature exists regarding gang joining and desistance among juveniles, in addition to comparisons of gang-involved youth to non-delinquent peers. However, previous research examining gang and non-gang youth offenders, especially with relation to dynamic risks, is limited. The current study examined the impact of gang involvement on criminogenic need, risk of recidivism, and official recidivism in youth offenders. Specifically, the impact of gang involvement on scores of criminogenic needs, and the potential of gang membership as a moderator of the predictive validity of the YLS/CMI were examined. These topics are the first step in investigating the appropriateness of the RNR Model and predictive validity of actuarial risk assessment for gang-involved youth offenders.

Prior to conducting the main analyses, the author first sought to determine if individuals in two gang status categories in the raw data, “yes” and “suspected,” had significant differences across demographic categories contained in the data (age, gender, ethnicity, crime type, and educational level), as well as two of the main variables examined in this study: overall risk of recidivism and official recidivism. The author hypothesized that youth in these two classifications (e.g. yes and suspected) would not significantly differ in terms of the tested categories. This hypothesis was supported for all of the characteristics except for ethnicity. Mixed race youth were found to be significantly more likely to be classified as suspected rather than yes, while all other ethnicities were classified similarly. This result is peculiar, and suggests that the proportion of mixed race youth classified as gang-involved in this study may be inflated. It may also suggest that mixed race youth are being disproportionately classified as gang-involved. Since no significant differences were found between yes and suspected youth on the majority of the demographic categories tested, the author chose to collapse yes and suspected

youth into a single category, gang-affiliated, for the remainder of the analyses in this study and to include ethnicity as a control variable.

Based on prior research attesting to the high criminogenic impact of being gang-affiliated, the author also hypothesized that scores in areas of criminogenic risk and need would be significantly higher for gang-involved youth. Areas of criminogenic need (a.k.a. dynamic risk) were operationalized using scores on each domain of the YLS/CMI (prior offenses, education, leisure/recreation, peer relations, substance abuse, family relations, personality, and attitudes). These domains were designed to capture the “central eight” criminogenic risk and need factors described by Andrews & Bonta as being key components of criminality in the Psychology of Criminal Conduct theory (Andrews & Bonta, 2010). Multi-variate regression analyses were used to test the author’s hypotheses. Each model included gang involvement as the independent variable, scores on one of the eight domains of dynamic risk as the dependent variable, and controlled for the effects of age, gender, and ethnicity. Conclusions from these analyses align with the author’s expectations. Across every domain, gang-involved youth offenders had significantly higher scores of criminogenic needs than non-gang youth. These effects persisted even with the inclusion of control variables. Gang involvement had the highest impact on peer relation scores. Items on this scale attempt to capture a youth’s associations with delinquent and pro-social peers and acquaintances, with higher scores indicating elevated involvement with delinquent peers instead of more pro-social relationships. Given the nature of gangs includes association with peers, and the vast amount of literature demonstrating the increased involvement of gang members in delinquency, this result is not surprising. What is surprising, is the fact that the results of these analyses differ substantially from the results of the Singaporean studies, which showed no effect of gang status on scores of criminogenic needs. It

is possible that this is due to the increased sample size ($N=556$ vs. $N=165$) or the inclusion of a more diverse group of individuals in this sample. Though results for each criminogenic domain were significant, the effects of gang status for many were quite small. For example, scores on the prior offense domain were only 0.19 points higher for gang-involved individuals than those without gang involvement. It may be that a larger sample was simply needed in order to discover these small but significant effects.

The effect of control variables on criminogenic domain scores varied. Gender had the largest impact; results showed that females had significantly higher scores on leisure, peer relations, family, and personality domain scores than males. Age also had a significant effect on some domain scores. Specifically, increases in age were associated with decreases in criminogenic need on education, family, and personality domains. However, older youth had significantly higher scores on the substance abuse domain. Ethnicity significantly affected results for three of the criminogenic domains: substance abuse, family score, and attitudes. However, these results were not consistent. Compared to Caucasian youth, African-American youth had significantly lower scores on the substance abuse domain, Mixed Race/Other Race youth had significantly higher scores on the family domain, and Hispanic/Latino youth had significantly higher scores on the attitudes domain. In summary, it seems that young, female, gang-affiliated, Hispanic or Mixed-Race youth offenders are likely to have the most elevated profiles of criminogenic risk and need.

In addition, the author hypothesized that gang-affiliated youth offenders would have higher scores of overall general risk of recidivism. This expectation was based on the idea that prior research shows a substantial link between increased delinquency and gang affiliation. Consequently, it was expected that gang-involved youth offenders would have a higher

likelihood of involvement in future delinquent acts than youth offenders who were not gang involved. Multi-variate regression was again utilized to evaluate this hypothesis with age, gender, and ethnicity again included as controls. Total YLS/CMI score was used to operationalize risk of recidivism, as the YLS/CMI has been designed to predict recidivism risk and total YLS/CMI score has been previously shown to be a valid and reliable indicator of recidivism risk (Onifade et al., 2008). Results supported the author's hypothesis, as gang-affiliated individuals were found to have significantly higher total YLS/CMI scores than non-gang affiliated individuals. Considering that gang-affiliated youth offenders were found to have significantly higher scores across all domains of criminogenic need, and the fact that criminogenic need scores are designed to drive overall risk of recidivism scores, this result is not surprising. The only control variable found to also have significant effects was gender. Specifically, females were found to have significantly elevated scores of recidivism risk in comparison to males.

Finally, the author hypothesized that gang-affiliation would significantly increase two-year recidivism rates for youth offenders. This hypothesis was examined using logistic regression with the inclusion of age, gender, and ethnicity as control variables once more. First, a logistic regression analysis, without the inclusion of control variables, suggested being gang affiliated raised the odds of recidivism by a factor of 1.62 in comparison to non-gang affiliated youth offenders. However, this significant effect disappeared when control variables were added to the model. Once control variables were included, ethnicity was the only variable found to exert a significant effect on recidivism. Specifically, being Mixed Race or Other increased an individual's odds of recidivism by a factor of 1.70 compared to Caucasian youth offenders. Consequently, the author's hypothesis was not completely supported since a significant effect for

gang involvement was not found on recidivism, controlling for all other variables, even though the inclusion of controls improved the prediction of recidivism ($\chi^2=3.86$, $p=0.049$ in Model 1 without controls; $\chi^2=13.83$, $p=0.032$ in Model 2 with controls included).

Taken together, the results of these analyses reveal that although compared to non-gang youth offenders gang-involved youth have elevated profiles of criminogenic need and higher risk of recidivism, being gang-involved does not significantly affect official recidivism when combined with individual demographic variables. It may be the case that gang involvement, while positively contributing to an overall model of recidivism prediction, simply exerts a weaker effect on recidivism than other variables such as age (which was nearly significant in the final model) or ethnicity (which was significant in the final model). This would explain why gang involvements significant individual effect on recidivism disappear when controlling for the effects of other variables. Furthermore, rather than having completely unique patterns of criminogenic needs, on average gang-involved youth seem to demonstrate the same patterns of dynamic risk as non-gang involved youth, but at an elevated level (for an illustration of this idea, see Figure 1 on page 31).

Finally, the author sought to explore if gang status moderated the predictive validity of the YLS/CMI for recidivism. This question was included because of its practical implications. The YLS/CMI has been established as a valid and reliable predictor of recidivism for general offenders by prior research (Onifade et al., 2008). Nevertheless, it is possible that its ability to predict risk of recidivism could be affected for sub-groups of offenders, such as gang-involved youth. The YLS/CMI predicts recidivism using two main measures, total score and risk level. Both of these measures were tested for moderation effects with gang status. No evidence of a significant moderation effect was present with overall risk score. However, dummy analysis

showed that, compared to moderate risk non-gang youth, being both gang affiliated and high risk had a significant interaction effect on prediction of recidivism. No such effect was detected for youth with any other combination of gang status and YLS risk level. It is likely that the elevated criminogenic needs of gang-affiliated youth offenders are causing gang-affiliated youth to become classified more often as high risk. Indeed, in this sample the majority of youth who were gang involved fell into either the moderate or high-risk categories. Only 1% of gang-affiliated youth offenders were classified as low risk, compared to 17% of non-gang youth offenders. It is possible that individuals who are both gang-involved and high risk may have specific dynamic risks not captured by this general risk assessment tool, that are necessary to capture differences among this high-risk population. Or, it could be that gang-affiliated offenders are simply just a sub-type of high risk juvenile offender, and should be treated the same as high risk non-gang youth offenders. Further analysis suggested that there were no significant differences between high risk gang and non-gang offenders with regards to recidivism. This may indicate that the latter is more likely to be true. Future studies should explore the utility of the RNR Model and interventions for moderate and high-risk youth with gang-involved youth offenders.

5.1 Limitations

There are limitations that exist for the present study. First, this study was conducted using archival data. As utilizing archival data for research purposes does not allow researchers to supervise data as it is collected, there is no guarantee that systematic data collection errors were not present during the initial data collection process (Vieira, Skilling, & Peterson-Badali, 2009).

Second, recidivism in this study was only defined when an individual came into official court contact. Consequently, many other potential forms of recidivism exist that were not captured by this study (for example – self-reported delinquency, arrest, or conviction). The

measure of recidivism used in this study was deliberately utilized for several reasons. For example, official petitions allow for a more conservative estimate of recidivism than arrest, which could also capture crimes for which an individual was never charged. Comparatively, petitions allow for a more generous estimate of recidivism than a measure such as conviction. Therefore, utilizing official petitions allow for a more middle-ground approach to recidivism. Although this method was selected purposely, it cannot be ignored that the inclusion of differing or other measures of recidivism could have altered the results of this study. The use of a more liberal measure such as arrests would likely have led to higher instances of recidivism in the data, while the use of a more conservative measure such as convictions would likely have led instances of recidivism to decrease.

Third, the method for gang status classification is potentially a limitation for this study. Gang status was defined using the judgements of juvenile court officers (JCO), rather than relying solely on self or peer reports of gang affiliation. Although JCOs were given training and instruction regarding this classification status, there is no way to ascertain that all individuals followed these instructions correctly. Furthermore, the method of classification utilized involved an amount of discretion on the part of the JCOs. What may have been enough evidence to deem a youth as definitely gang involved for one JCO may have been only enough for another to declare the same youth as “suspected” of gang involvement instead.

Lastly, it is possible that individuals who were suspected of gang involvement or defined as definitively gang involved may have been under closer scrutiny by their JCOs than those were deemed non-gang affiliated. If this occurred, it could have had the potential to affect recidivism rates, as more highly supervised offenders would have had a higher probability of being caught in the event of any criminal wrongdoing. Similarly, it is also possible that higher risk youth

offenders would be more likely to be classified as gang-involved or suspected of gang involvement even if they were never affiliated with a gang. Given the high percentage of gang-affiliated offenders that were also classified as high risk (and vice versa), and the fact that risk level can play a large part in how this study's site makes programming and supervision decisions, the potential effects of this possibility should not be considered lightly. This study was not able to examine the potential impact of supervision on gang status classifications or petitions. Future studies of gang status in youth offenders should include measures that allow the effect of court supervision to be examined, such as probation violations or sanctions.

5.2 Future Directions

Results from the current study have demonstrated that gang-involved youth offenders have elevated criminogenic needs and risk of recidivism compared to non-gang juvenile offenders. These results show that the criminogenic needs and risk of recidivism of gang-involved youth offenders can indeed be captured by current risk assessment tools, although this sub-population will likely exhibit higher levels of dynamic risk and need than non-gang offenders. Future studies should involve comparisons of gang-involved youth offenders and non-gang but high-risk juvenile offenders. How similar are these two groups? How are they different? If substantial differences are found, it could indicate that current risk assessment tools will need to be re-normed for use with gang-involved offenders to account for their elevated levels of criminogenic needs. Or, results from such studies could indicate that gang-involved offenders are so substantially different from non-gang high risk youth that they may need to be given a separate or supplemental assessment specifically formulated to capture the unique needs of gang-involved youth.

Furthermore, this study was the first step towards testing the utility of the RNR Model for the rehabilitation of gang-involved youth offenders. Future studies should specifically examine if rehabilitative decisions made using the RNR Model are effective for gang-involved youth, or are at least as effective for gang-involved youth offenders as they are for non-gang. Researchers should also examine the effectiveness of intervention programming designed to reduce the risk of recidivism for non-gang youth offenders with gang youth. Such work has the potential to assist justice system practitioners in their rehabilitative efforts with gang-involved youth offenders.

APPENDIX

Appendix:

Table 19. Contents of the Youth Level of Service/Case Management Inventory (YLS/CMI)

DOB:	Age:			Gender: M F	
Ethnicity:	Caucasian	African-American	Hispanic/Latino	Mixed Race	Other
Gang Status:	Yes	Suspected	No	Don't Know	Original Charge:
Type of Assessment:	New Case	Re-Assessment	Residential	Step Down	Exit
1. Prior & Current Offenses/Dispositions A. Three or More Prior Convictions B. Two or More Failures to Comply C. Prior Probation D. Prior Custody E. Three or More Current Convictions Total Score:			2. Education A. Low Achievement B. Problems with Teachers C. Problems with Peers D. Disruptive Classroom Behavior E. Disruptive Behavior on School Property F. Truancy Total Score:		
3. Leisure & Recreation A. Lack of Organized Activities B. Could Make Better Use of Time C. No Personal Interests Total Score:			4. Peer Relations A. Lack of Positive Peer Acquaintances B. Lack of Positive Friends C. Some Delinquent Peer Acquaintances D. Some Delinquent Friends Total Score:		
5. Substance Abuse A. Occasional Drug Use B. Chronic Drug Use C. Chronic Alcohol Use D. Substance Abuse Interferes with Life E. Substance Use Linked to Offense(s) Total Score:			6. Family & Parenting A. Inadequate Supervision B. Difficulty in Controlling Behavior C. Inappropriate Discipline D. Inconsistent Parenting E. Poor Relations (Father-Youth) F. Poor Relations (Mother-Youth) Total Score:		
7. Attitudes & Orientation A. Not Seeking Help B. Actively Rejecting Help C. Defies Authority D. Antisocial/Pro-criminal Attitudes E. Callous, Little Concern for Others Total Score:			8. Personality & Behavior A. Short Attention Span B. Poor Frustration Tolerance C. Verbally Aggressive/Verbally Intimidating D. Explosive Episodes E. Physically Aggressive F. Inadequate Guilt Feelings G. Inflated Self Esteem Total Score:		
Overall Total Risk Score: Overall Total Risk Level: Low Risk (0-8) Moderate Risk (9-22) High Risk (23-34) Very High (35-41)					

REFERENCES

REFERENCES

- Alleyne, E., & Wood, J. L. (2010). Gang involvement: psychological and behavioral characteristics of gang members, peripheral youth, and nongang youth. *Aggressive Behavior*, 36(July), 432–436. <https://doi.org/10.1002/ab.20360>
- Alleyne, E., & Wood, J. L. (2014). Gang involvement: Social and environmental factors. *Crime & Delinquency*, 60(4), 547–568. <https://doi.org/10.1177/0011128711398029>
- Andrews, D. a., & Bonta, J. (2010). Rehabilitating criminal justice policy and practice. *Psychology, Public Policy, and Law*, 16(1), 39–55. <https://doi.org/10.1037/a0018362>
- Andrews, D. A., Bonta, J., & Hoge, R. D. (1990). Classification for effective rehabilitation - Rediscovering Psychology. *Criminal Justice and Behavior*, 17(1), 19–52.
- Andrews, D. A., Bonta, J., & Wormith, J. S. (2006). The Recent Past and Near Future of Risk and/or Need Assessment. *Crime & Delinquency*, 52(1), 7–27. <https://doi.org/10.1177/0011128705281756>
- Andrews, D. A., Bonta, J., & Wormith, J. S. (2011). The risk need responsivity (RNR) model does adding the good lives model contribute to effective crime prevention? *Criminal Justice and Behavior*, 38(7), 735–755. <https://doi.org/10.1177/0093854811406356>
- Ang, R. P., & Huan, V. S. (2008). Predictors of recidivism for adolescent offenders in a singapore sample. *Criminal Justice and Behavior*, 35(7), 895–905. <https://doi.org/10.1177/0093854808317270>
- Ang, R. P., Huan, V. S., Chan, W. T., Cheong, S. A., & Leaw, J. N. (2015). The role of delinquency, proactive aggression, psychopathy and behavioral school engagement in reported youth gang membership. *Journal of Adolescence*, 41, 148–156. <https://doi.org/10.1016/j.adolescence.2015.03.010>
- Ang, R. P., Huan, V. S., Hoon Chua, S., & Huan Lim, S. (2016). Gang affiliation, aggression, and violent offending in a sample of youth offenders. *Psychology, Crime & Law, homepage*(March), 1477–2744. <https://doi.org/10.1080/1068316X.2010.534480>
- Assink, M., van der Put, C. E., Hoeve, M., de Vries, S. L. A., Stams, G. J. J. M., & Oort, F. J. (2015). Risk factors for persistent delinquent behavior among juveniles: A meta-analytic review. *Clinical Psychology Review*, 42, 47–61. <https://doi.org/10.1016/j.cpr.2015.08.002>
- Boxer, P., Docherty, M., Ostermann, M., Kubik, J., & Veysey, B. (2017). Effectiveness of multisystemic therapy for gang-involved youth offenders: One year follow-up analysis of recidivism outcomes. *Children and Youth Services Review*, 73, 107–112. <https://doi.org/10.1016/j.childyouth.2016.12.008>

- Boxer, P., Kubik, J., Ostermann, M., & Veysey, B. (2015). Gang involvement moderates the effectiveness of evidence-based intervention for justice-involved youth. *Children and Youth Services Review*, 52, 26–33. <https://doi.org/10.1016/j.childyouth.2015.02.012>
- Boxer, P., Veysey, B., Ostermann, M., & Kubik, J. (2015). Measuring gang involvement in a justice-referred sample of youth in treatment. *Youth Violence and Juvenile Justice*, 13(1), 41–59. <https://doi.org/10.1177/1541204013519828>
- Brennan, T., Dieterich, W., & Ehret, B. (2009). Evaluating the Predictive Validity of the Compas Risk and Needs Assessment System. *Criminal Justice and Behavior*, 36(1), 21–40. <https://doi.org/10.1177/0093854808326545>
- Caudill, J. W. (2010). Back on the swagger: Institutional release and recidivism timing among gang affiliates. *Youth Violence and Juvenile Justice*, 8(1), 58–70. <https://doi.org/10.1177/1541204009339872>
- Chu, C.M., Daffern, M., Thomas, S., Ang, Y., Long, M., Science, B., & Stuart Thomas is based, P. (2015). Determinants of gang affiliation in Singaporean youth offenders: social and familial factors. *Journal of Aggression, Conflict and Peace Research*, 7(1), 19–32. <https://doi.org/10.1108/JACPR-11-2013-0031>
- Chu, C. M., Daffern, M., Thomas, S. D. M., Ang, Y., & Long, M. (2014). Criminal attitudes and psychopathic personality attributes of youth gang offenders in Singapore. *Psychology, Crime & Law*, 20(3), 284–301. <https://doi.org/10.1080/1068316X.2013.772182>
- Chu, C.M., Daffern, M., Thomas, S. D. M., & Ying Lim, J. (2011). Elucidating the treatment needs of gang-affiliated youth offenders. *Journal of Aggression, Conflict and Peace Research*, 3(3), 129–140. <https://doi.org/10.1108/17596591111154167>
- Chu, C. M., Daffern, M., Thomas, S., & Lim, J. Y. (2012). Violence risk and gang affiliation in youth offenders: A recidivism study. *Psychology, Crime & Law*, 18(3), 299–315. <https://doi.org/10.1080/1068316X.2010.481626>
- Coid, J.W., Ulrich, S., Keers, R., Bebbington, P., DeStavola, B. L., Kallis, C., Yang, M. Reiss, D., Jenkins, R., Donnelly, P. (2013). Gang membership, violence, and psychiatric morbidity. *The American Journal of Psychiatry*, 170 (September), 985–994.
- Decker, S. H., Katz, C. M., & Webb, V. J. (2008). Understanding the black box of gang organization. *Crime & Delinquency*, 54(1), 153–172. <https://doi.org/10.1177/0011128706296664>
- Decker, S. H., Melde, C., & Pyrooz, D. C. (2013). What do we know about gangs and gang members and where do we go from here? *Justice Quarterly*, 30(3), 369–402. <https://doi.org/10.1080/07418825.2012.732101>

- Di Placido, C., Simon, T. L., Witte, T. D., Gu, D., & Wong, S. C. P. (2006). Treatment of gang members can reduce recidivism and institutional misconduct. *Law and Human Behavior*, 30(1), 93–114. <https://doi.org/10.1007/s10979-006-9003-6>
- Dmitrieva, J., Gibson, L., Steinberg, L., Piquero, A., & Fagan, J. (2014). Predictors and consequences of gang membership: Comparing gang members, gang leaders, and non-gang-affiliated adjudicated youth. *Journal of Research on Adolescence*, 24(2), 220–234. <https://doi.org/10.1111/jora.12111>
- Dong, B., & Krohn, M. D. (2016). Dual trajectories of gang affiliation and delinquent peer association during adolescence: an examination of long-term offending outcomes. *Journal of Youth and Adolescence*, 45(4), 746–762. <https://doi.org/10.1007/s10964-016-0417-2>
- Esbensen, F.-A., & Carson, D. C. (2012). Who are the gangsters? *Journal of Contemporary Criminal Justice*, 28(4), 465–481. <https://doi.org/10.1177/1043986212458192>
- Esbensen, F.-A., Peterson, D., Taylor, T. J., & Freng, A. (2009). Similarities and differences in risk factors for violent offending and gang membership. *Australian and New Zealand Journal of Criminology*, 42(3), 310–335. <https://doi.org/10.1375/acri.42.3.310>
- Hanson, R. K., & Morton-Bourgon, K. E. (2009). The accuracy of recidivism risk assessments for sexual offenders: A meta-analysis of 118 prediction studies. *Psychological Assessment*, 21(1), 1–21. <https://doi.org/10.1037/a0014421>
- Hockenberry, S., & Puzzanchera, C. (2017). *Juvenile Court Statistics 2014*. Pittsburgh, PA.
- Huebner, B. M., Varano, S. P., & Bynum, T. S. (2007). Gangs, guns, and drugs: Recidivism among serious, young offenders. *Criminology & Public Policy*, 6(2), 187–221. <https://doi.org/10.1111/j.1745-9133.2007.00429.x>
- Jackson, A. (2016). Gang risk factors among urban Jamaican youth : A qualitative analysis. *International Journal of Criminal Justice Sciences*, 11(2), 132–147. Retrieved from <https://search-proquest-com.proxy2.cl.msu.edu/docview/1875723784?accountid=12598>
- Klein, M. W., Weerman, F. M., & Thornberry, T. (2006). Street gang violence in Europe. *European Journal of Criminology*, 3(4), 413–437. <https://doi.org/10.1177/1477370806067911>
- Krohn, M. D., Ward, J. T., Thornberry, T. P., Lizotte, A. J., & Chu, R. (2011). The cascading effects of adolescent gang involvement across the life course. *Criminology*, 49(4), 991–1028. <https://doi.org/10.1111/j.1745-9125.2011.00250.x>
- Latessa, E.J., Listwan, S. L., Koetzle, D. (2014). *What works (and doesn't) in reducing recidivism*. New York City, New York: Routledge.

- Lattimore, P. K., Macdonald, J. M., Piquero, A. R., Linster, R. L., & Visher, C. A. (2004). Studying the characteristics of arrest frequency among paroled youthful offenders. *Journal of Research in Crime and Delinquency*, 41(1), 37–57. <https://doi.org/10.1177/0022427803256094>
- Manchak, S. M., Skeem, J. L., & Douglas, K. S. (2008). Utility of the revised Level of Service Inventory (LSI-R) in predicting recidivism after long-term incarceration. *Law and Human Behavior*, 32(6), 477–488. <https://doi.org/10.1007/s10979-007-9118-4>
- Matsuda, K. N., Melde, C., Taylor, T. J., Freng, A., & Esbensen, F.-A. (2013). Gang membership and adherence to the “code of the street.” *Justice Quarterly*, 30(3), 440–468. <https://doi.org/10.1080/07418825.2012.684432>
- McDaniel, D. D. (2012). Risk and protective factors associated with gang affiliation among high-risk youth: a public health approach. *Injury Prevention*, 18(4), 253–258. <https://doi.org/10.1136/injuryprev-2011-040083>
- Melde, C., Diem, C., & Drake, G. (2012). Identifying correlates of stable gang membership. *Journal of Contemporary Criminal Justice*, 28(4), 482–498. <https://doi.org/10.1177/1043986212458196>
- Melde, C., & Esbensen, F.-A. (2013). The relative impact of gang status transitions: Identifying the mechanisms of change in delinquency. *Journal of Research in Crime and Delinquency*, 51(3), 349–376. <https://doi.org/10.1177/0022427813507059>
- Melde, C., & Esbensen, F. A. (2011). Gang membership as a turning point in the life course. *Criminology*, 49(2), 513–552. <https://doi.org/10.1111/j.1745-9125.2011.00227.x>
- Melde, C., & Esbensen, F. A. (2012). Gangs and violence: disentangling the impact of gang membership on the level and nature of offending. *Journal of Quantitative Criminology*, 29(2), 143–166. <https://doi.org/10.1007/s10940-012-9164-z>
- Melde, C., Gavazzi, S., McGarrell, E., & Bynum, T. (2011). On the efficacy of targeted gang interventions: Can we identify those most at risk? *Youth Violence and Juvenile Justice*, 9(4), 279–294. <https://doi.org/10.1177/1541204011399934>
- Melde, C., Taylor, T. J., & Esbensen, F. A. (2009). “I got your back”: An examination of the protective function of gang membership in adolescence. *Criminology*, 47(2), 565–594. <https://doi.org/10.1111/j.1745-9125.2009.00148.x>
- Merrin, G. J., & Espelage, D. L. (2015). Are the risk and protective factors similar for gang-involved, pressured to join, and non-gang involved youth? *American Journal of Orthopsychiatry*, 85(5), 522–535.

- O'Brien, K., Daffern, M., Chu, C. M., & Thomas, S. D. M. (2013). Youth gang affiliation, violence, and criminal activities: A review of motivational, risk, and protective factors. *Aggression and Violent Behavior, 18*(4), 417–425.
<https://doi.org/10.1016/j.avb.2013.05.001>
- Onifade, E., Davidson, W., Campbell, C., Turke, G., Malinowski, J., & Turner, K. (2008). Predicting recidivism in probationers with the Youth Level of Service/Case Management Inventory. *Criminal Justice & Behavior, 35*(4), 474–483.
<https://doi.org/10.1177/0093854807313427>
- Papp, J., Campbell, C., Onifade, E., Anderson, V., Davidson, W., & Foster, D. (2016). Youth drug offenders: an examination of criminogenic risk and juvenile recidivism. *Corrections, 1*(4), 229–245. <https://doi.org/10.1080/23774657.2016.1218804>
- Pyrooz, D. C. (2014). From colors and guns to caps and gowns? The effects of gang membership on educational attainment. *Journal of Research in Crime and Delinquency* (Vol. 51).
<https://doi.org/10.1177/0022427813484316>
- Pyrooz, D. C. (2014). “From your first cigarette to your last dyin’ day”: The patterning of gang membership in the life-course. *Journal of Quantitative Criminology, 30*(2), 349–372.
<https://doi.org/10.1007/s10940-013-9206-1>
- Pyrooz, D. C., & Decker, S. H. (2013). Delinquent behavior, violence, and gang involvement in China. *Journal of Quantitative Criminology, 29*(2), 251–272.
<https://doi.org/10.1007/s10940-012-9178-6>
- Pyrooz, D. C., & Sweeten, G. (2015). Gang membership between ages 5 and 17 years in the United States. *Journal of Adolescent Health, 56*(4), 414–419.
<https://doi.org/10.1016/j.jadohealth.2014.11.018>
- Schmidt, F., Campbell, M. A., & Houlding, C. (2011). Comparative analyses of the YLS / CMI , SAVRY , and PCL:YV in adolescent offenders : A 10-year follow-up into adulthood, 23–42. <https://doi.org/10.1177/1541204010371793>
- Schram, P. J., & Gaines, L. K. (2007). Comparing the effects of treatment on female juvenile gang and non-gang members. *Women & Criminal Justice, 18*(4), 1–15.
<https://doi.org/10.1080/08974450802095937>
- Schwalbe, C. S. (2007). Risk assessment for juvenile justice : A meta-analysis, 449–462.
<https://doi.org/10.1007/s10979-006-9071-7>
- Scott, T.-L., & Ruddell, R. (2011). Canadian female gang inmates: risk, needs, and the potential for prison rehabilitation. *Journal of Offender Rehabilitation, 50*(6), 305–326.
<https://doi.org/10.1080/10509674.2011.583717>

- Seave, P. L. (2011). Evidence-based practices reduce juvenile recidivism: Can state government effectively promote implementation among probation departments? *American Journal of Community Psychology*, 48(1–2), 138–140. <https://doi.org/10.1007/s10464-010-9416-8>
- Sharkey, J. D., Shekhtmeyster, Z., Chavez-Lopez, L., Norris, E., & Sass, L. (2011). The protective influence of gangs: Can schools compensate? *Aggression and Violent Behavior*, 16(1), 45–54. <https://doi.org/10.1016/j.avb.2010.11.001>
- Sickmund, M., & Puzzanchera, C. (Eds.). (2014). *Juvenile Offenders and Victims : 2014 National Report*. Pittsburgh, PA: National Center for Juvenile Justice.
- Stys, Y., & Ruddell, R. (2013). Organized crime offenders in Canada: Risk, reform, and recidivism. *Journal of Offender Rehabilitation*, 52(2), 75–97. <https://doi.org/10.1080/10509674.2012.734370>
- Tapia, M. (2010). U.S. Juvenile arrests: Gang membership, social class, and labeling effects. *Youth & Society*, 43(4), 1407–1432. <https://doi.org/10.1177/0044118X10386083>
- Taxman, F. S. (2006). Risk, needs, responsivity: In action or inaction? *Crime & Delinquency*, 52(1), 3–6. <https://doi.org/10.1177/>
- Taylor, T. J., Peterson, D., Esbensen, F.-A., & Freng, A. (2007). Gang membership as a risk factor for adolescent violent victimization. *Journal of Research in Crime and Delinquency*, 44(4), 351–380. <https://doi.org/10.1177/0022427807305845>
- Thompson, A. P., & Mcgrath, A. (2012). Subgroup differences and implications for contemporary risk-need-assessment with juvenile offenders, 36(4), 345–355. <https://doi.org/10.1037/h0093930>
- Thornberry, T. ., Krohn, M. D., Lizotte, A. J., Smith, C. A., & Tobin, K. (2003). *Gangs and Delinquency in Developmental Perspective*. *Gangs and Delinquency in Developmental Perspective*. Cambridge, United Kingdom: Cambridge University Press. <https://doi.org/10.1017/CBO9780511499517>
- Trulson, C. R., Haerle, D. R., DeLisi, M., & Marquart, J. W. (2011). Blended sentencing, early release, and recidivism of violent institutionalized delinquents. *Prison Journal*, 91(3), 255–278. <https://doi.org/10.1177/0032885511409868>
- Trulson, C. R., Marquart, J. W., Mullings, J. L., & Caeti, T. J. (2005). In between adolescence and adulthood: Recidivism outcomes of a cohort of state delinquents. *Youth Violence and Juvenile Justice*, 3(4), 355–387. <https://doi.org/10.1177/1541204005278802>
- Vieira, T. A., Skilling, T. A., & Peterson-Badali, M. (2009). Matching Court-Ordered Services with Treatment Needs Predicting Treatment Success with Young Offenders. *Criminal Justice and Behavior*, 36(4), 385–401. <https://doi.org/10.1177/0093854808331249>

- Watkins, A. M., & Taylor, T. J. (2016). The prevalence, predictors, and criminogenic effect of joining a gang among urban, suburban, and rural youth. *Journal of Criminal Justice*, 47, 133–142. <https://doi.org/10.1016/j.jcrimjus.2016.09.001>
- White, R., & Mason, R. (2006). Youth gangs and youth violence: Charting the key dimensions. *Australian and New Zealand Journal of Criminology*, 39(1), 54–70. Retrieved from <https://search-proquest-com.proxy2.cl.msu.edu/docview/225227957?accountid=12598>