

CAN DETENTION REDUCE RECIDIVISM OF YOUTH? AN OUTCOME EVALUATION  
OF A JUVENILE DETENTION CENTER

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**Title**

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**MASTER OF SCIENCE**

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## ABSTRACT

This study is an outcome evaluation of a secure unit of one juvenile detention center in the Midwest. The primary purpose of this study was to elucidate the relationship between a secure detention placement and recidivism on a sample of Midwest juvenile offenders. Besides the examination of recidivism of the total sample, this study examined differences between two subsamples of the institutionalized juveniles, those in a treatment program and those in detention only. The importance of demographics, prior admissions, length of stay, frequency of institutional misconduct, and exposure to treatment was examined. Results suggest a significant negative relationship between the age at admission and recidivism, and a positive one between prior admissions and recidivism. Length of stay, institutional misconduct, and treatment did not reach significance. This study did not find support for the effectiveness of juvenile detention in recidivism reduction. Implications of findings and suggestions for future research are discussed.

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## **DEDICATION**

To my mom and the girls, for always challenging me, yet, at the same time,  
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## TABLE OF CONTENTS

ABSTRACT.....	iii
ACKNOWLEDGEMENTS.....	iv
DEDICATION.....	v
LIST OF TABLES.....	ix
LIST OF FIGURES.....	x
CHAPTER 1: INTRODUCTION.....	1
CHAPTER 2: LITERATURE REVIEW.....	9
Historic Overview of the Juvenile Justice System.....	9
The Progressive Era (1900s to 1960s).....	10
The Reform of the Juvenile Justice System.....	11
Portrayal of Juveniles by the Media.....	14
What Makes Adolescents so Frightening?.....	15
Recent Trends in the Juvenile Justice System.....	18
Youth Detention Centers.....	20
The Interrelationship of Schooling and Crime.....	23
Length of Stay.....	25
Institutional Misconduct.....	26
The Multifaceted Importance of Age.....	31
Evidence-Based Practices and Thinking for a Change Program.....	33
Cognitive-Behavioral Programs.....	35
The Current Study.....	39
CHAPTER 3: METHODOLOGY.....	42
Data.....	43
Sample.....	43

Study Design .....	44
Measures.....	45
Independent Variables .....	45
Control Variables.....	47
Dependent Variable .....	47
Analysis .....	48
Hypotheses .....	48
CHAPTER 4: ANALYSIS .....	50
Demographic Characteristics .....	50
Frequencies of the Predictor Variables .....	52
Age at First Admission.....	52
Prior Admissions .....	53
Length of Stay .....	54
Institutional Misconduct.....	56
Recidivism.....	57
Regression Analyses .....	58
Test of Hypothesis One .....	61
Test of Hypothesis Two.....	61
Test of Hypothesis Three.....	61
Test of Hypothesis Four .....	62
Full Regression Model .....	62
CHAPTER 5: CONCLUSION .....	64
Findings and Discussion.....	64
Limitations and Future Implications .....	67
Policy Implications .....	70

Summary .....	71
REFERENCES .....	74
APPENDIX. VARIANCE INFLATION FACTOR COLLINEARITY DIAGNOSTICS .....	79



## LIST OF TABLES

<u>Table</u>	<u>Page</u>
1. Demographics of the Total Sample, and the Detention and Treatment Subsamples.....	51
2. Correlation Matrix of Independent and Control Variables.....	53
3. Frequencies of the Independent Variables for the Total Sample, and the Two Subsamples .....	55
4. Binary Logistic Regression Models.....	60

## LIST OF FIGURES

<u>Figure</u>		<u>Page</u>
1.	Most Common Reasons for DRT .....	57
2.	Breakdown of Readmissions by the Total Sample and Subsamples .....	58

## CHAPTER 1: INTRODUCTION

The United States' juvenile justice system emerged in the late 1800s, with the first juvenile justice court founded in Chicago in 1899. The primary focus of juvenile corrections has ebbed and flowed from rehabilitation to punitiveness throughout history. Juvenile corrections initially embraced the idea of reforming the offenders and treating juveniles as good children who simply chose the wrong path. However, the early 1980s' nationwide policy changes in the adult justice system migrated into the juvenile justice system as well; being tougher on crime, the system turned to punitiveness and started locking up a growing number of juvenile offenders (Holman and Ziedenberg, 2013; Scott and Steinberg, 2009).

Since the 1980s, there has been a change in youth offending trends, with significant increases in female offending and violent crimes (Tarolla, Wagner, Rabinowitz, and Tubman, 2002; Trulson, Marquart, Mullings, and Caeti, 2005). Given the higher prevalence of personal crime (i.e., attempted or completed rape, sexual assault, assault, personal robbery, purse snatching, and pocket picking), juvenile delinquency was framed as one of the nation's pressing social problems that made whole communities victims of its emotional, physical, and economic effects (Tarolla et al., 2002). The United States still places the largest proportion of its youth in correctional institutions, despite the significant drop in the total number of adjudicated youth placed in residential facilities over the last two decades (Holman and Ziedenberg, 2013; Leone and Wruble, 2015; The Annie E. Casey Foundation, 2013; Walker and Bishop, 2016). Regardless of the shift in corrections towards deinstitutionalization and rehabilitation, the decision to institutionalize a juvenile offender is very much alive—a result of policies related to the severity of crime, rather than an idea to fulfill a child's need for treatment (Walker and Bishop, 2016). According to the U.S. Department of Justice (2016), almost 51,000 juvenile offenders were held

in residential placement nationwide on a given day in 2014. This number reached its apex in 2000 with 108,802 juveniles in residential placement on any given day, and has been dropping ever since, resulting in a 53 percent drop since 2000 (U.S. Department of Justice, 2016; Walker and Bishop, 2016).

Research has demonstrated mixed results on the effects of incarceration on recidivism for juvenile population due to the differences in needs youth display and the variety in programs they receive while in the institution (Walker and Bishop, 2016). Given the prevalence and continuity of youth offending, it is a high public safety priority to assure that the programs and interventions juveniles receive in correctional institutions are working (Smith, Gendreau, and Swartz, 2009; Tarolla et al., 2012). According to the U.S. Department of Justice (2015), most juveniles adjudicated in 2013 were held accountable for some form of personal crime, with the national average of 38 percent, compared to 25 percent being held for property crimes in the same year. In Minnesota, the state presented in this study, 47 percent of juveniles were detained due to a crime against a person, 21 percent due to property crime, and 6 percent of juvenile correctional constituents were there for drug-related offenses (U.S. Department of Justice, 2015).

Outcome evaluations on the effectiveness of custodial penalties in reducing recidivism in juvenile settings are not very prevalent, but those conducted showed that detention either increased recidivism or maintained status quo, suggesting that confinement should be a sentence of choice only for a specific type of juvenile offenders (Gordon, 2002; Greenwood and Turner, 1993; McGrath and Weatherburn, 2012; Wooldredge, 1988). According to McGrath and Weatherburn (2012), when dealing with juvenile offenders, the priority should be to include them into evidence-based programs, instead of simply locking them up. Evidence-based programs use scientific, empirically supported evidence on the known predictors of crime to guide the best

practices in targeting those factors that can result in a behavioral change (Latessa, Cullen, and Gendreau, 2002; MacKenzie, 2000). Providing juvenile offenders with treatment is cost-effective and shown to be successful in lowering recidivism for juveniles in the justice system (Lipsey, 2009; MacKenzie, 2000; McGrath and Weatherburn, 2012; Wooldredge, 1988).

Successful programs incorporate treatment elements focusing specifically on criminogenic needs, using the past behavior as the best predictor of future behavior (Andrews, 2006; Latessa, Cullen, and Gendreau, 2002; MacKenzie, 2000). Criminogenic needs are both the dynamic risk factors and the protective factors that affect reoffending; the risk factors need to be reduced and/or protective factors need to be enhanced in order to decrease reoffending (Andrews, 2006). Recidivism can be targeted by using the principles of effective intervention that adhere to the three fundamental conditions in offender treatment—risk principle, needs principle, and responsivity principle. The risk principle tells us who to target; treatment must be delivered to high-risk offenders. The needs principle suggests what to target; treatment should target criminogenic needs. The responsivity principle dictates how to perform the intervention; treatment ought to be provided in accordance with the offender’s learning style and ability (Andrews and Bonta, 2010; Andrews, Bonta, and Hoge, 1990; Gordon, 2002; Latessa, Cullen, and Gendreau, 2002; Smith, Gendreau, and Swartz, 2009).

Regarding the criminogenic needs, Andrews (2006) identified the “big four risk factors” in corrections, which include the (1) antisocial attitudes, values, and beliefs, (2) antisocial personality, (3) antisocial peers, and (4) criminal history. There are successful ways to target antisocial attitudes, values, and beliefs, and antisocial personality while the offenders are confined in an institution. In addition, research identified the importance of understanding the behavior of justice-involved youth, as those who were more socially defiant, ambivalent to

authority, and less submissive, offended more (Skilling and Sorge, 2014). Studies have shown that antisocial attitudes are related to aggression and substance use, underscoring the importance of this component in both female and male juvenile delinquency (Skilling and Sorge, 2014).

Effective interventions address those needs that can be changed (MacKenzie, 2000). Smith, Gendreau, and Swartz (2009) summarized the published meta-analyses in the field of corrections, combining the results from hundreds of studies conducted within two decades, and validating the effectiveness of principles of effective intervention in reducing recidivism. They included studies discussing (1) the overall effectiveness of treatment programs on recidivism, (2) treatment programs that incorporated some general “what works” principles, and (3) programs using more specific criteria with published effect sizes of adhering to the principles of effective intervention (Smith, Gendreau, and Swartz, 2009). They found that treatment can produce reductions in recidivism, some better than others, with the effectiveness of treatment depending on the type of client (responsivity) (Smith, Gendreau, and Swartz, 2009). Smith, Gendreau, and Swartz (2009) found consistent support for cognitive-behavioral interventions over other treatment modalities, concluding that proper implementation of treatment and program integrity can significantly reduce recidivism.

However, very little is known about the number of youth correctional facilities that adopt some form of treatment program, let alone the level of program’s integrity—whether and to what extent the program has been implemented and run as intended (MacKenzie, 2000; Walker and Bishop, 2016). Research so far that focused on juveniles’ length of stay in the institution and future recidivism in institutions with no therapeutic orientation, found little to no difference between their length of stay and recidivism (Loughran, Mulvey, Schubert, Fagan, Piquero, and Losoya, 2009; Walker and Bishop, 2016; Winokur, Smith, Bontrager, and Blankenship, 2008;

Wooldredge, 1988). Average length of stay for juveniles in detention centers ranges from a couple of days to months or even years, making it a challenge for institutions to provide youth with the appropriate treatment program (Holman and Ziedenberg, 2013; Leone and Wruble, 2015; Winokur et al., 2008). According to Walker and Bishop (2016), pushing policymakers to reconsider institutional placement of juvenile offenders as a default method of punishment emphasizes the need for research on how to use placement as a therapeutic option, or whether to use it at all. Loughran et al. (2009) posed a question of justifiability or political attractiveness of such use of resources, if there are no gains from longer stay in the institutions. In addition, detaining the youth puts strain on them in continuing their post-release education, contributing to elevated school withdrawal or drop-out rates for incarcerated youth (Holman and Ziedenberg, 2013). Research has identified the importance of graduating from high school in re-routing future criminal behavior and enhancing juveniles' employment opportunities (Forsyth, Asmus, Howat, Pei, Forsyth, and Stokes, 2014; Holman and Ziedenberg, 2013; Lattimore, MacDonald, Piquero, Linster, and Visher, 2004; Scott and Steinberg, 2008), making juvenile detention a highly problematic concept, especially given the lack of clear empirical evidence on its effectiveness.

Another area in juvenile institutions that needs more research is the relationship between institutional misconduct and future recidivism. Misconduct is one of the key indicators of delinquency and antisocial behavior, yet its relationship to post-release success is under-researched (Trulson, DeLisi, and Marquart, 2011). In adult prisons, Smith and Gendreau (2008) found misconduct to be a good indicator of recidivism, but only a few studies dedicated their attention to this issue in juvenile institutions. Institutional misconduct disrupts the everyday functioning of the facility, and the consequences of institutional misconduct for juvenile offenders range from loss of various privileges, to solitary confinement, or even new charges

and/or a transfer (MacDonald, 1997; Trulson, 2007). Most of the studies focused on the pre-institutional variables that predict institutional misconduct, and virtually no studies looked at the effects of institutional misconduct on future recidivism (Poole and Regoli, 1983; Trulson, 2007; Trulson, DeLisi, and Marquart, 2011). Scarce research so far supports the idea of a positive relationship between institutional misconduct and the risk of future re-arrests (Lattimore et al., 2004; Trulson, DeLisi, and Marquart, 2011). However, this relationship needs to be further examined as it might be intertwined with the institutional type—whether it is custody or treatment oriented (Poole and Regoli, 1983).

Overall, studies provided mixed results as to whether institutionalization of juveniles has an effect on reducing recidivism (Cottle, Lee, and Heilbrun, 2001; Loughran et al., 2009; McGrath and Weatherburn, 2012; Wooldredge, 1988). Length of stay does not have a significant impact on youth's future offending (Lipsey, Wilson, and Cothorn, 2000; Loughran et al., 2009; Poole and Regoli, 1983; Walker and Bishop, 2016; Winokur et al., 2008; Wooldredge, 1988), but lack of social skills and (a disruption in) formal education makes them more susceptible to crime and recidivism (Holman and Ziedenberg, 2013; Leone and Wruble, 2015). However, juveniles receiving some form of behavioral or social skills treatment while in the institution reoffended less (Lipsey, Chapman, and Landenberger, 2001; Lipsey, Wilson, and Cothorn, 2000; Poole and Regoli, 1983; Walker and Bishop, 2016; Wilson, Bouffard, and MacKenzie, 2005).

This study will add to the existing pool of knowledge on the issues and benefits of a juvenile detention, by examining the recidivism of juveniles placed in a secure unit of a residential correctional facility. This study will bring further advancements in the field by discerning between juveniles who were exposed to treatment while in the institution, and those who were not, and analyzing the two subsamples. The treatment administered in the facility of



interest is Thinking for a Change—a cognitive-behavioral program developed by the National Institute of Corrections (Bush, Glick, and Taymans, 2011).

The purpose of this study is to conduct an outcome evaluation of a secure unit of one juvenile detention center in the Midwest, discerning between the subsample in detention and in treatment. In order to do so, this study will first provide the reader with a discussion about the history of the juvenile justice system, focusing on legal and developmental concepts that differentiate juveniles from adults and emphasizing the importance of research on this specific population. This study will then turn to the concept of juvenile detention as the panacea for juvenile offending and recidivism, and introduce the reader to certain challenges detained youth can face, which might set up their path for failure. More specifically, in accordance with previous research, this study will take into account juveniles' age at admission, age at their first offense or their first contact with the correctional institution, length of stay in the institution measured in days, prior admissions, and the number of institutional misconducts, to examine their effects on recidivism. Research suggests that the length of stay will not have an impact on juvenile recidivism (Loughran et al., 2009; Walker and Bishop, 2016; Winokur et al., 2008; Wooldredge, 1988), while the age at first offense and the number of prior admissions will display a strong relationship to recidivism in opposite directions—the younger the offenders at their first admission and the higher the number of their prior admissions, the higher their recidivism (Cottle, Lee, and Heilbrun, 2001; Forsyth et al., 2014; Gann, Sullivan, and Ilchi, 2015; Hannah-Moffat, 2005; Holman and Ziedenberg, 2013; MacDonald, 1997; McGrath and Weatherburn, 2012; Trulson, 2007; Trulson et al., 2005; Willinius, Delfin, Billstedt, Nilsson, Anckarsäter, and Hofvander, 2016).

This outcome evaluation will also provide the reader with the information on the frequency of misconduct in the institution for each admission and examine the potential differences in the frequency of misconduct and post-release success for juveniles released from the correctional facility. Based on the scarce research, the number of institutional violations should be a good predictor of recidivism (Lattimore et al., 2004; Trulson, 2007; Trulson, DeLisi, and Marquart, 2011; Trulson et al., 2005). Finally, this study will recognize the findings thus far on the effectiveness of cognitive-behavioral therapies, and examine the effects of Thinking for a Change program on recidivism for a subsample of juvenile offenders institutionalized in the Midwestern correctional facility. In doing so, this longitudinal study will answer the question whether placing juveniles in a secure detention unit lowers recidivism within 24 months post-release in order to shed more light on this complicated and under-researched area in juvenile corrections.

## CHAPTER 2: LITERATURE REVIEW

Research on juvenile detention and its effectiveness in reducing recidivism is scarce, with very few outcome evaluations examining the relationship between placement in a juvenile correctional institution and reoffending. The current study will bridge the knowledge gap by examining the recidivism of a sample of institutionalized juvenile offenders. To accomplish this, this study will first introduce the reader to three main eras in the historic development of the juvenile justice system—The Pre-Progressive Era, The Progressive Era, and Contemporary trends, and to the idea of juvenile detention as the commonly used mode of sanction, despite the lack of empirical support for its effectiveness. In order to elucidate the association between detention and reoffending among juveniles, this study will then explain the overall concept of juvenile detention and more specifically the effects of length of stay in the institution on the post-release success, together with the predictive value of institutional misconduct on reoffending. Finally, this study will examine the relationship between youth's age and recidivism, and the effectiveness of cognitive-behavioral treatment when working with juvenile offenders in order to answer the main research question: Do juvenile offenders placed in a secure unit of a juvenile detention center commit less subsequent crime? As a first step in this process, the next chapter will provide an overview of the juvenile justice system.

### **Historic Overview of the Juvenile Justice System**

Legal regulation of juveniles can be divided in three eras: The Pre-Progressive Era (1800s and early 1900s), The Progressive Era (1900s to 1960s), and Contemporary trends (1960s onwards). Until the late 1800s, the government was not very involved in the welfare and health of its youngest, letting them grow up exclusively under authority and responsibility of their parents (Scott and Steinberg, 2008). Concepts that are nowadays taken for granted, such as mandatory

school education, at that time depended on parental discretion—children went to school only if their parents wanted them to. However, beginning with the turn of the century, the state took lives of the youth out of their parents’ hands and into its own, triggering a plethora of changes in the overall public sector; a period known as The Progressive Era.

### *The Progressive Era (1900s to 1960s)*

Beginning in the late 19<sup>th</sup> century, America decided that the states should have influence on juveniles’ lives and should respond to juvenile misbehavior with treatment instead of punishment (Steinhart, 1996). Starting in 1899, states began modifying their laws and creating a whole new system—the juvenile justice system. This system separated youthful offenders from adults and gave them another chance in life, under the idea that there are certain developmental differences which result in varying levels of culpability and mental capacity of these two populations (Holman and Ziedenberg, 2013; Scott and Steinberg, 2008; Steinhart, 1996). The Nation’s first juvenile court was opened in Chicago, Illinois, in 1899.

The Progressive Era brought about social reforms aiming to improve children’s overall lives, irrespective of the wishes and plans their parents had for them (such as to support the family economy through labor). Children’s education became mandatory, and child labor was restricted. The State engaged in the role of super-parent, and took over the authority and duty to protect children and guide them toward productive adulthood (Scott and Steinberg, 2008). This era was an overall tumultuous period, marked with various legal and institutional reforms such as the women’s suffrage movement, the fight for an eight-hour workday, and the use of journalism to expose “big business” corruption. New legislation based on child protection focused on interventions, and favored removing children from families and underlying circumstances that led them to offend in the first place (Steinhart, 1996). The mission of the juvenile court was to

promote welfare of delinquent children, and of those whose parents failed to provide them with adequate care. The Progressives saw juvenile offenders as innocent children gone astray who needed treatment, and they had faith in the effectiveness of interventions (Scott and Steinberg, 2008).

The court proceeding was not a criminal trial but an informal hearing. The purpose of the hearing was to recognize the factors leading the child to display the behavior they did, and to determine the sanction that would put the juvenile on the right track (Scott and Steinberg, 2008). Juvenile courts had a broad power to intervene in lives of all children considered neglected, wayward, or endangered, under the idea of salvaging their lives from being ruined. By the 1950s there were special houses and other institutions established specifically to deal with problematic youth (Steinhart, 1996).

However, the initial enthusiasm waned, and in the 1960s various controversies revolved around juvenile courts; they faced charges of using rehabilitative model as a cloak, while in reality being cruel and punitive (Steinhart, 1996). The idea that there was no need for juveniles to have an attorney or any procedural protections adults have, due to the informal and non-criminal hearings, was now considered as depriving juveniles of their procedural rights given to the adult defendants (Scott and Steinberg, 2008). Courts were accused of developing different operationalizations of “status crime” and “delinquency,” consequently establishing different rules of processing and disposition of the two (Steinhart, 1996). This led to efforts to reform the juvenile justice system.

#### *The Reform of the Juvenile Justice System*

The push for reform culminated in 1967 with *In re Gault*, the landmark case that extended due process protections to youth in delinquency proceedings, and transformed the hearings into

more formal, adversarial hearings. In 1972, during the Vietnam War, Congress ratified the Twenty-Sixth Amendment to the U.S. Constitution lowering the minimum voting age to eighteen, thereby including more youth in the realm of politics. Turning the spotlight onto the juvenile population and the public and legal issues revolving around them, prompted criminologists and sociologists to start studying those delinquent boys, who were gaining cultural and economic independence from their families (Adelman and Yalda, 2000). The United States enacted the Juvenile Justice and Delinquency Prevention Act (JJDP) in 1974—an act to unify the standards for care and custody of court-involved youth across the country. The Act strongly advised states against detaining juveniles, and in favor of referring them to counseling, treatment, and similar forms of a non-secure environment. This legislation established the Office of Juvenile Justice and Delinquency Prevention (OJJDP) to support local and state efforts in this cause.

In the wake of JJDP, the states came under harsh criticism for excessive incarceration of disobedient or runaway youth, for punishing them when other family members were also to blame, and for moving away from the treatment focus. One of the perceived downsides of this law was that many juveniles who could no longer be detained were simply relabeled as delinquents and locked up in a secure facility (Steinhart, 1996). Lack of the financial investment into services for status offenders resulted in failure to meet their needs, leading to a sharp increase in juvenile violent crime rates in the beginning of the 1980s (Cottle, Lee, and Heilbrun, 2001; Scott and Steinberg, 2008; Steinhart, 1996). With the increase in crime, there was an increase in fear, especially a fear of runaways, truants, and disobedient children. The overall aura of fear and distrust culminated with the Juvenile Justice Delinquency Prevention Act amendment—Valid Court Order (VCO) amendment. According to this document, adjudicated status offenders who violate a VCO or a direct order from the court, can be put in a secure detention (Steinhart, 1996).

Although not all juvenile judges were on board with the VCO, the 1990s ignited the spark with the tough-on-crime movement, shifting priorities and rehabilitative orientation of the juvenile justice system to punitive ones, justifying this change with a rise in super-predators and school shooting incidents. According to Scott and Steinberg (2008), there is a lower probability of a student being murdered while in school than that of being struck by lightning, but the advocates of harsher punishments claimed that children have become emboldened knowing they could not be locked up—they had no moral inhibitions, no social control, and were beyond the reach of the justice system (Adelman and Yalda, 2000; Holman and Ziedenberg, 2013; Scott and Steinberg, 2008; Steinhart, 1996).

Punitiveness of the juvenile justice system focused on three themes: (1) young offenders are not children but dangerous criminals; (2) violent juvenile crime is epidemic, in part due to carelessness of court dispositions; and (3) rehabilitation and lenient treatment, at least of serious juvenile offenders, is a dismal failure (Scott and Steinberg, 2008). The media, with its high focus on violence, further perpetuated this myth of American youth being out of control, leading to mutual reinforcement of the escalating patterns in responses to juveniles among the politicians, the media, and the general public; societal perception of youth as a pathology fueled the moral panic (Adelman and Yalda, 2000; Myers, 2012; Scott and Steinberg, 2008). Worried adults relied on high juvenile crime reports, juvenile homicides, elevated school drop-out levels, youth unemployment, and teen pregnancies, which conformed to the societal trepidation and panic of this population, to construct the fear of youth—clinically known as *ephebiphobia* (Adelman and Yalda, 2000; Myers, 2012). This fear was promulgated by the media.

## **Portrayal of Juveniles by the Media**

Juvenile offenders were depicted in the media without any social context; as a population who started their lives as average, bright, happy, and loving children, but somewhere along the path something went terribly wrong leaving parents and communities aghast (Myers, 2012). However, the preponderance of evidence shows that backgrounds of juvenile offenders are usually anything but normal or average (Myers, 2012). Making them appear “normal” was a political trick to make their actions seem more unforgivable and reprehensive, and to justify the harsh punishments they were given (Myers, 2012). The threshold of adult legal status on a state level has, again, been dramatically lowered, the sanctions have become harsher and longer, and blended sentences were constructed under which a juvenile can be sentenced to forty-year sentences (Loughran et al., 2009; Scott and Steinberg, 2008; Trulson, DeLisi, and Marquart, 2011). Until the age of majority, juveniles will serve blended sentences in juvenile institutions, but as they reach the age of majority they will be transferred to adult prisons (Scott and Steinberg, 2008). According to Myers (2012), dealing with juveniles through therapy and reintegration, a standard argument in other Western countries, is borderline unheard of in the United States. Non-carceral alternatives for the juvenile population are rarely considered (Myers, 2012). At the same time, other research continuously shows public support for rehabilitative practices instead of punitiveness, especially with juvenile population (Applegate, Cullen, and Fisher, 1997; Moon, Sundt, Cullen, and Wright, 2000).

Myers (2012) conducted an ethnographic content analysis using 40 televised juvenile justice news representations to examine whether television portrayals of the juvenile justice system minimize the role of social factors in youth delinquency, by displaying youth as worthy of incarceration, and by emphasizing detained youth’s violence and rationality in opting for



delinquent behavior. Although information received by the media might be of questionable quality, media is still the primary resource for many citizens, especially when it comes to crime discourse (Myers, 2012). Myers' (2012) analysis showed three main themes in the media: (1) media portrays juvenile detentions as deserved punishments by focusing on violence as a rational choice of average youth who made bad decisions or found themselves in the bad crowd, and by disproportionately reporting about violent juvenile crimes; (2) more punitive policies of the U.S. correctional system, including violence and misconduct in juvenile facilities, are seen as integral to change youth and are normalized through borderline tactics (such as “break them down, build them up” ideas prevalent in boot camps); and (3) juvenile justice is effectively removed from political sphere by serving as the *infotainment* through which daily workings of juvenile facilities are shown as dramatic or comic stories sending a message that the solution to juvenile crime is so simple one can get it from the sit-coms (Myers, 2012). From this aspect, media ensures us that the punishments of those juveniles are just and reasonable; contrary to the previous trends, media does not elicit moral panic, but fosters status quo—there is nothing that needs to be changed, because the system is just and deserving (Myers, 2012). Adolescents, going through a specific and turbulent stage in their development, and further aggravated by the media, may be perceived as a menace that deserves to be dealt with accordingly.

### **What Makes Adolescents so Frightening?**

To a certain extent fear, panic, and the dehumanization of youth are understandable. Teenagers as a concept did not even exist up until half a century ago when young people were increasingly shifted from the job market into schools, to secure jobs for adult males coming back from the war (Adelman and Yalda, 2000). Apart from being an unknown concept to the wider public, adolescence as such is characterized by a unique set of features that presents a distinct

period of development (Scott and Steinberg, 2008). The word adolescence derives from a Latin word *adolescere*, to grow into adulthood. According to Adelman and Yalda (2000), youth is a concept that signalizes an age-based separation, where social, cultural, and economic powers of a society partially determine who is able and who is barred from living as a child (Adelman and Yalda, 2000; Scott and Steinberg, 2008). It is a transitional and a formative period marked by rapid and dramatic biological, cognitive, and emotional change, and by transformations in interpersonal relationships and major social concepts—family, peers, and school (Scott and Steinberg, 2008). Events and experiences that take place during this period affect the pathways into adulthood and might set the course of adolescents' future lives (Scott and Steinberg, 2008).

Adolescence is also a very risky period and should be carefully monitored (Pavićević, 2014). The risks concern potential threats to various aspects of juvenile's well-being; their physical and mental safety, social and economic safety, and health in the broadest sense of the word (Pavićević, 2014). Adolescence is marked by youths' engagement with risk, as they start creating their own biographies rather than following the previously established ones (Heath, 1999). At this age people start experimenting with risky, illegal, or dangerous activities, such as alcohol and drug use, or unsafe sex (Scott and Steinberg, 2008). According to Arnett (2006), there is a link between sensation-seeking and risk behavior in adolescence, united with rebellion against parental values, while trying to establish oneself as an individual (Scott and Steinberg, 2008). Youth always seek excitement, and when this is not available (or attractive enough) in the form of moral and intellectual enthusiasm, they will search for it in form of drinking and sex (Arnett, 2006).

For the most part, youth criminal activity is simply a further experimentation as a process of their individualization and identity formation, combined with the psychosocial immaturity that

disables them from making socially acceptable decisions and judgments (Scott and Steinberg, 2008). Adolescence is marked by unpredictability, contingency, and risk, and the development of a will to confront authorities (Heath, 1999). As Hall asserted, it is a time of storm and stress, of emotional and behavioral turmoil before reaching the state of stability through adulthood (Arnett, 2006; Hall, 1904). Some youth present contempt and/or resistance to the law and legal authority as a part of their identity (Adelman and Yalda 2000); as they find themselves in the middle of the two conflicting values—traditional social expectations and changing social realities (Pomeroy, 2008), which may lead to feelings of insufficiency, failure, and stigmatization. One of the collective solutions to such feelings is manifested as a creation of delinquent subcultures expressing dissatisfaction through antisocial or criminal avenues (Pomeroy, 2008). According to Thornton (1995), youth are a paradox; on the one hand, they aspire to a more egalitarian and democratic world, whereas on the other, their strategy for transcending being classed is turning to classlessness. Juveniles wish to obfuscate the dominant structure in order to set up the alternative one (Thornton, 1995).

To combat this new strain in the population and to prevent multiple accidental deaths of runaway children, the system got tougher. Courts were established that were more passionate about detaining juveniles instead of treating them, and it became easier to incarcerate juveniles in adult correctional institutions (Holman and Ziedenberg, 2013; Winokur et al., 2008). Juvenile courts, built on the foundation of *parens patriae*, or state as a parent, lost their initial function of surrogate parents for delinquent, dependent, and neglected children, and instead turned to fixed sentencing guidelines with little judicial discretion in punishment of troubled youth (Inderbitzin, 2006). According to Adelman and Yalda (2000), the majority of research on juveniles stems from criminological and sociological research on criminal youth identified as troublemakers,

delinquents, and gang members, with the latest focus on youth violence. To achieve the punitive agenda, reformers redefined the offender as something other than a child—a super predator, a serious threat and enemy of the society who needs to be dealt with accordingly, instead of being entitled to the legal protection and leniency a child has (Scott and Steinberg, 2008). However, after decades of punitiveness, the system is once again reexamining the effectiveness and validity of its practices, giving another impetus to rehabilitation and treatment for juvenile offenders.

### **Recent Trends in the Juvenile Justice System**

A recent de-incarceration trend in juvenile corrections provides opportunities to deal with juvenile offenders in a more successful, cost-effective, and humane way, with better outcomes for the offenders, their families, and communities as a whole (The Annie E. Casey Foundation, 2013). Unfortunately, with many young people being formally or informally institutionalized in families, mental health institutions, or prisons, youth are hard to be empirically studied due to many gatekeepers standing in the way (Adelman and Yalda, 2000). Scientific knowledge about cognitive, neurobiological, and psychosocial development of adolescents supports the idea that juveniles differ from adults in crucial ways that should be used as a foundation for legal regulation of juvenile crime and the decisions about their appropriate treatment within the justice system. The differences between adolescent and adult populations are in their susceptibility to coercion, level of planning and accounting for the long-term consequences of their current actions, and in traits and tendencies typical for the normative patterns of development. Legally, as juveniles cross the line into adulthood, they are assumed to be autonomous and responsible for their choices and actions (Scott and Steinberg, 2008). However, the idea of youth, their rights, and the age of majority is arbitrary and based on social determinants and political concepts of the time (Adelman and Yalda, 2000); what might be perfectly legal for adults, is illegal for juveniles.

Behaviors whose legality depends on the actor's age fall under the umbrella term of status offenses. For the most part this line is eighteen years of age, but there are exceptions—for example, the legal drinking age is 21, while the legal driving age is 16.

The most common status offences are truancy, running away from home, minor in possession, and incorrigibility or disobedience (Steinhart, 1996). Scholars disagree on whether criminal justice sanctions (incarceration) are appropriate for these offenses, and if juveniles would prosper more from receiving treatment for family problems instead of detention. A typical image of a runaway child presents youth who are most likely thrown away by their families and are more likely than youth in general to engage in problematic behavior, including substance abuse, suicide attempts, unsafe sexual behavior, and crime (Steinhart, 1996).

Steinhart (1996) looked at the status offender characteristics from the data estimates on status offenders processed by a juvenile court from the National Center for Juvenile Justice. He found that most of the minors petitioned to the court were under the age of 16, with both genders being petitioned under the same rate up to the age of 16, when, due to liquor laws violations, there was an increase in male petitions. In his sample, African Americans were petitioned disproportionately higher than their white counterparts. Steinhart (1996) also looked at the FBI data and found the most common status offenses among this population to be runaways. While runaways were mostly females, over 70 percent of curfew, loitering, and liquor law arrestees were males (Steinhart, 1996).

The Annie E. Casey Foundation composed a list of recommendations on how to improve the chances of success for children entering the juvenile justice system, and developed The Juvenile Detention Alternatives Initiative (JDAI) program. JDAI started two decades ago as a pilot project, and is based on a public-private partnership developed as a response to

inappropriate and unnecessary detention of youth in the nation's juvenile justice system (Holman and Ziedenberg, 2013). Its goal is to restructure all the surrounding systems, in order to create improvements reaching far beyond the detention alone (Holman and Ziedenberg, 2013). Among others, the goals are the inter-governmental collaboration of various key actors in the juvenile justice system (courts, probation, police) and the reliance on data for making informed decisions (Holman and Ziedenberg, 2013). They also suggest limiting and/or reducing eligibility for correctional placement on those offenders who indeed pose a risk to public safety (The Annie E. Casey Foundation, 2013).

So far, JDAI member states have had success in decreasing the use of detention for juvenile population, while keeping the communities safe (Holman and Ziedenberg, 2013). Some of the common elements shown to be effective when working with this population are a treatment built around youth's and family's strengths in a family-like setting at/or close to home, delivered in a culturally competent manner, as well as providing the youth and their families with a plethora of services and resources (Holman and Ziedenberg, 2013; The Annie E. Casey Foundation, 2013). Despite the evident reemergence of the concept of rehabilitation, juvenile detentions still seem to be a widely accepted method of sanctioning juvenile offenders, leading to high rates of juvenile incarceration, with no solid evidence that such practices work. The following chapters will provide an insight into juvenile detention, the factors that might be related to youth recidivism, and the "what works" mechanisms that should be used to prevent future offending of the juvenile population.

### **Youth Detention Centers**

The primary purpose of youth detention centers is to temporarily house high-risk youth before their trial, or youth deemed unlikely to appear for trial; juvenile detention centers are the

juvenile justice's version of jails (Holman and Ziedenberg, 2013). Youth might also be detained because of a probation or parole revocation, or while they are awaiting their final disposition (Holman and Ziedenberg, 2013). Detention time varies from a couple of days to several months (Holman and Ziedenberg, 2013; Leone and Wruble, 2015; McGrath and Weatherburn, 2012), during which time youth are physically and emotionally separated from their families and communities—the agents most invested in their recovery and success. Institutionalized juveniles face the deprivation of their liberty on a daily basis, and are forced to live in the company of people they did not have the freedom to choose, remaining in contact with the outside world through television and the occasional call or visit from their family (Inderbitzin, 2006).

According to The Annie E. Casey's 2011 report, juvenile correctional facilities have enormous operating costs, often increase youth's risk of injury and abuse, and are largely ineffective in reducing recidivism. Housing youth in often understaffed facilities breeds negligence and violence, and some research shows it has extremely negative effects on youth's mental and physical well-being, education, and future employment (Holman and Ziedenberg, 2013). Being detained makes it harder for them to age out of their delinquency period and reintegrate to society, as it disrupts their family, school, and work relationships (Holman and Ziedenberg, 2013).

Wooldredge (1988) compared the recidivism rates for the detention juveniles to probationers, and found that court supervision with community treatment demonstrated the lowest recidivism rates, while detention either increased recidivism or maintained status quo, suggesting that confinement should be a sentence of choice only for a specific type of juvenile offenders. McGrath and Weatherburn (2012) compared future reoffending between Australian juveniles sentenced to correctional facility and those sentenced to community corrections. In their

study, the detention group was slightly more likely to reoffend than the offenders left in the community, but the difference was not statistically significant (McGrath and Weatherburn, 2012). However, they suggested that having contact with the criminal justice system can act as a school of crime, by immersing an individual into the environment that reinforces antisocial values and is conducive to new criminal skills (McGrath and Weatherburn, 2012; Wooldredge, 1988). The system also might elevate the individual's risk of reoffending and could be inherently criminogenic purely by labeling the individual and decreasing their conventional educational and employment opportunities (McGrath and Weatherburn, 2012). In addition, youth might tend to behave in ways others perceive them; stigmatizing them as criminals can result in display of such behavior (McGrath and Weatherburn, 2012). However, McGrath and Weatherburn (2012) found no differences between detention and community corrections, when controlling for gender, indigenous status, socio-economic disadvantage, criminal history, age at first court appearance, and the number of prior convictions, imprisonment, and violent offenses. Gordon (2002) compared the outcome differences between one juvenile residential substance abuse treatment center administering a highly structured cognitive-behavioral program and institutions offering some type of treatment (e.g., substance abuse, skills training, education) when needed. Gordon (2002) found that the treatment juveniles were less likely to be reconvicted of a new offense, but still had a higher number of substance use incidents and charges. Regardless of the placement and exposure to treatment, most youth in Gordon's (2002) study had at least one other involvement with the criminal justice system. Cottle, Lee, and Heilbrun (2001) in their meta-analysis of risk factors contributing to recidivism of juveniles placed in the correctional institution, within the community, or on probation, found the offense history to be the strongest predictor of recidivism, although family and behavioral problems, delinquent peers, and idleness were also found to be



very strong predictors of reoffending, regardless of the sentencing option. Given the widespread use of juvenile detention, despite the unclear evidence on the advantages of this sanctioning method, the next section looks at some broader social consequences of disruption in juveniles' lives as they get confined.

### *The Interrelationship of Schooling and Crime*

Apart from the questionable effect of youth incarceration on recidivism, secure detention of juveniles could have negative effects on schooling and future employment opportunities of this population. Young people with educational paths disrupted or impeded during the adolescent period usually do not fully recover (Scott and Steinberg, 2008). According to Holman and Ziedenberg (2013), high school dropouts are almost four times more likely than graduates to be arrested, and are significantly more likely to be re-arrested as parolees (Lattimore et al., 2004). In addition, high school dropouts face higher unemployment, poorer health, and substantially lower wages than their non-detained peers (Holman and Ziedenberg, 2013). School problems have further been linked to an increased risk of aggressive antisocial behavior (Willinius et al., 2016), with truancy as the first sign and the best predictor of future delinquency (Forsyth et al., 2014).

According to Forsyth et al. (2014), school suspensions and expulsions should be taken into account when looking at juvenile delinquency and criminality. Suspensions and/or expulsions from the educational system are usually the result of truancy, poor performance, and dropping out, are highly related to poverty, and further intertwined with peer pressure and lack of parental guidance, potentially leading to crime (Forsyth et al., 2014; McGrath and Weatherburn, 2012; Scott and Steinberg, 2008). A large number of juvenile offenders do not feel any relationship to their schools; they view schools as hostile places irrelevant for their future (Forsyth et al., 2014). Forsyth et al. (2014) examined the relationship between the number of

disciplinary infractions per student during an academic year and the number of subsequent felony offenses for all public K-12 students statewide. They found that school infractions are a good indicator of future delinquency. Students with zero infractions had no felonies, while those with one or more school infractions all had a similar number of felonies (Forsyth et al., 2014). Forsyth et al. (2014) also found that only a small minority of students (20%) accounted for all of the felony arrests.

Willinius et al. (2016) used a sample of male offenders in emerging adulthood (18 to 25 years of age), who served time for violent offenses in Sweden, to examine the psychosocial predictors of aggressive antisocial behavior, and the relationship between the early onset in school problems and violent home environments with future crime. They found that the majority of their sample had school problems and had not completed high school at the expected age (Willinius et al., 2016).

Interactions between the youth and their broader social contexts, such as schools, prior to their admittance to detention could elucidate why some juveniles get involved into criminal activity and others do not (Scott and Steinberg, 2008), and predict future recidivism. School maladjustment, indicated as truancy and non-attendance, and conflict with authorities are shown to be the strongest predictors of aggressive antisocial behavior (Forsyth et al., 2014; Heynen, van der Helm, Wissink, Stams, and Moonen, 2015; Willinius et al., 2016). Since antisocial behavior is one of the criminogenic needs (Andrews, 2006), and youth who have been detained before are much more likely to go “deeper” in the system (Cottle, Lee, and Heilbrun, 2001; Forsyth et al., 2014; Hannah-Moffat, 2005; Holman and Ziedenberg, 2013; Poole and Regoli, 1983; Trulson, 2007; Trulson et al., 2005; Willinius et al., 2016), it might be important to consider the number of emergency placements in the institutions for runaway or truancy, as a risk factor for recidivism.

However, once a juvenile ends up in the correctional facility, it is also important to know how much time they should spend in the institution to make their stay cost-effective, without imposing more harm than good. To this end, it is important to examine the impact of length of stay in a correctional institution.

### *Length of Stay*

Legislation changes in the get-tough era resulted in prosecuting more juveniles as adults, giving them lengthier sentences, and placing them in secure units (Winokur et al, 2008). The important question is therefore, how long should juvenile offenders be removed from society, and what effects does the incarceration have on their future behavior and recidivism.

There are very few studies on this issue, and the overall results are mixed. Institutions with no treatment displayed either no relationship between the length of stay and recidivism, or the detrimental effects of the longer stay (Loughran et al., 2009; Poole and Regoli, 1983; Walker and Bishop, 2016; Winokur et al., 2008; Wooldredge, 1988). Since very little is known about how many youth correctional facilities adopt some form of treatment, even less about the program's integrity (Walker and Bishop, 2016), the relationship between the length of stay and recidivism in juvenile institutions that offer treatment is not clear either (Lipsey, Wilson, and Cothorn, 2000; Walker and Bishop, 2016). It may be that the institutionalization of young offenders acts as a school of crime, increasing the potential of low-risk offenders to reoffend (McGrath and Weatherburn, 2012; Wooldredge, 1988). It might be the combination of other risk factors—biological, personal, structural, or economic (Andrews, 2006; Wooldredge, 1988) that affects their recidivism regardless of the length of stay, or simply the differences and flaws in measurements and designs from study to study (Greenwood and Turner, 1993; Landenberger and Lipsey, 2005; MacKenzie, 2000).

Winokur et al. (2008) studied almost 17,000 juveniles released from confinement to the community or aftercare in Florida, and found no consistent relationship between the length of stay and recidivism. The risk level of the commitment facility and the juvenile's gender mediated the effects of the length of stay, making it significant only for high risk males (Winokur et al., 2008). Poole and Regoli (1983) were looking at specific factors affecting the length of stay in their comparison study of four juvenile centers, and found that more violent youth were institutionalized longer. They also found that juveniles in custody oriented institutions were incarcerated for a shorter period of time, than those in treatment oriented institutions (Poole and Regoli, 1983). Wooldredge (1988) examined the effectiveness of different juvenile court dispositions and recidivism. He found that detention sentences, if used, should be short (Wooldredge, 1988). However, Wooldredge (1988) also found that community supervision can exacerbate recidivism rates as well, if it goes into, what he refers to as, *supervision overkill*. Wooldredge's (1988) study provided the most support for supervision with treatment, and found positive relationships between recidivism for both detention and supervision only, under longer sentences. These results once again emphasize the complexity of juvenile offending, lack of research, and mixed results on juvenile detentions. Although under-researched among juvenile offenders, research within adult populations suggests institutional misconduct is one other element that should be accounted for when predicting recidivism.

#### *Institutional Misconduct*

So far, research did not provide strong evidence that juvenile detention and lengthy stay in correctional facilities reduce recidivism, but institutionalization is still a widely used method in juvenile corrections. However, admission into correctional facility is a highly stressful event (Casiano, Katz, Globerman, and Sareen, 2013). Detained youth are under higher risk of suicide

than their peers on the outside (Casiano et al., 2013; Holman and Ziedenberg, 2013), which once again highlights the importance of finding empirical support for the effectiveness of detention in order to justify the high prevalence of institutionalization as the sanctioning method, despite its other detrimental effects on youth.

Research on misconduct in juvenile institutions and its relationship to recidivism is very scarce. Most research focuses on pre-institutional variables as predictors of institutional misconduct (Poole and Regoli, 1983; Trulson, 2007), but not on the effects institutional misconduct has on future offending. Given that misconduct is one of the key indicators of delinquency and other antisocial behavior, the lack of interest in this relationship is somewhat surprising (Trulson, DeLisi, and Marquart, 2011). Institutional misconduct encompasses behaviors and incidents that result in write-ups, rule infractions, and disciplinary tickets (Trulson, 2007). According to MacDonald (1997), the majority of institutional offenses are miscellaneous offenses that would not be considered criminally liable on the outside, and the minority of juveniles in the facility usually contributes to the majority of institutional infractions. Staff carries the burden of having the custodial role and the discretion to enforce rules and select appropriate punishments for institutional infractions (MacDonald, 1997). Consequences for juvenile institutional misconduct can vary from loss of recreational privileges, solitary confinement, new charges, or even a transfer to another facility, to a plethora of other administrative, managerial, and legal issues that can negatively impact the correctional setting, making it disruptive and dangerous for both staff and other offenders (MacDonald, 1997; Trulson, 2007).

Institutional misconduct is most often examined in adult institutions, focusing on two alternative models of misconduct: deprivation theory (Sykes, 1958), and importation theory (Irwin and Cressey, 1962). The deprivation model assumes that misbehavior comes as a result of

“pains of imprisonment,” due to five main deprivations inmates face when incarcerated: (1) deprivation of liberty, (2) goods and services, (3) heterosexual relationships, (4) autonomy, and (5) security (Sykes, 1958). Aggression is often a quick and efficient way for the inmate to alleviate some of the pains of imprisonment, even if at the expense of others (Poole and Regoli, 1983). According to this model, misconduct is simply a normal, human reaction to abnormal conditions, and it has very little to do with the inmates’ characteristics (Sykes, 1958). On the other hand, Smith and Gendreau (2008) used misconduct in adult prisons as a proxy measure for future criminal behavior, and found that it was a good indicator of adult recidivism, which is contrary to the idea that behavior in prison is an isolated event that does not affect future behavior outside. Such notion is more in line with the importation model, which presupposes that prison behavior is largely determined by the experiences and characteristics inmates exercise on the outside— they simply bring their attitudes, values, and behavior with them to the institution (Irwin and Cressey, 1962). According to this model, inmate misconduct has little to do with the institutional setting and depends mostly on inmates’ traits and previous lifestyle (Poole and Regoli, 1983; Trulson, 2007).

Poole and Regoli (1983) studied the impact of deprivation and importation models on violence in four male juvenile institutions assuming that both the institutional as well as inmate characteristics affect violence in prison. The question Poole and Regoli (1983) posed was whether and how the two models interact—do institutional characteristics mediate individual ones or do they simply add up. Poole and Regoli (1983) looked at age, race, attitudes toward aggression, and pre-institutional violence of the juveniles, and at the adoption of the inmate code, orientation of the institution (treatment or custody), and time served in months. They found that both sets of variables, independently, impact aggression among inmates, but the variations in the

institutional context mediated the impact of individual characteristics on inmate misconduct (Poole and Regoli, 1983). Some variables that are related to aggression in treatment oriented facilities (race, attitudes toward aggression, and length of stay) were no longer important in the custodial institutions (Poole and Regoli, 1983). The overall best predictor of inmate aggression, regardless of the institutional setting, was the pre-institutional violence (Poole and Regoli, 1983).

Trulson (2007) longitudinally examined serious and non-serious institutional misconduct of almost 4,700 male and female delinquents placed in the juvenile correctional system in South Texas, focusing primarily on the impact of individual characteristics and criminal history variables on institutional misconduct. The demographic variables in Trulson (2007) study included race and sex, and the delinquent history variables included age at first formal referral to the juvenile justice system, age at state commitment, age at release from incarceration, length of stay in days, and prior felony adjudications. He also looked at whether the juvenile was on probation at state commitment, the offense degree, gang membership, and previous violence toward juveniles' own family members (Trulson, 2007). For the risk variables, Trulson (2007) included gang affiliation of family members, number of out-of-home placements, highest grade completed, previous victimization (abuse) and experiences of neglect, parental divorce, and suicidal tendencies, among others. His dependent variables were institutional danger and institutional disruption (Trulson, 2007). Institutional danger measured whether youth attacked the staff or other residents or possessed a weapon while incarcerated, and institutional disruption was a measure of failure to comply with written requests from staff, such as failure to complete institutional chores or failure to keep the living area clean (Trulson, 2007). Juveniles who displayed two or more incidents of non-compliance received an incident report (Trulson, 2007).

Trulson's (2007) study found that, with regard to demographics, male, non-White, and gang-related youth were significantly more prone to serious forms of institutional misconduct. With regard to non-demographic factors, juveniles with more serious and more extensive delinquent histories, and earlier onset age were more likely to engage in serious misconduct within the institution (Trulson, 2007). These non-demographic predictors remained significant for the less serious but still disruptive misconduct, whereas the demographic ones failed to do so (Trulson, 2007). Over half of the juveniles in Trulson's (2007) study were considered institutional danger, and less than half of his sample was considered disruptive to the everyday functioning of the facility. Although, on average, males and females committed comparable amounts of incidents of any kind, males were much more likely to engage in these specific behaviors—relative to their sample size (Trulson, 2007).

In a similar study, Trulson, DeLisi, and Marquart (2011) examined the post-release re-arrest outcomes for 1,804 serious and violent male delinquents, and tried to relate the outcomes to that cohort's frequency of institutional misconduct. They looked at assaults against staff, assaults against other peers, and whether staff considered a juvenile as a danger (Trulson, DeLisi, and Marquart, 2011). Trulson, DeLisi, and Marquart (2011) found that total misconduct in the institution was a statistically significant predictor of re-arrests, but the effect size was very small, providing limited support for the misconduct-re-arrest relationship. Individual types of misconduct did not reach statistical significance (Trulson, DeLisi, and Marquart, 2011). More generally, Trulson, DeLisi, and Marquart (2011) found that, in accordance with other research (Lattimore et al., 2004; Poole and Regoli, 1983; Trulson, 2007; Trulson et al., 2005), the number of previous felonies and a delinquent adjudication were significant predictors of reoffending.



Overall, institutional misconduct (Lattimore et al., 2004; Trulson, 2007; Trulson, DeLisi, and Marquart, 2011; Trulson et al., 2005) and longer criminal histories (Lattimore et al., 2004; Poole and Regoli, 1983; Trulson, DeLisi, and Marquart, 2011) increased the expected post-institutional re-arrest rate. With regard to gender differences, males were slightly older at their first state commitment, but not at their first formal referral to the juvenile justice system (Trulson, 2007; Trulson et al., 2005). While males had a higher number of previous felonies, females were significantly more likely to be violent toward their family members and toward institutional staff (Trulson, 2007; Trulson et al., 2005). Regardless, Trulson et al. (2005) found less serious and less frequent reoffending outcomes for females. Lattimore et al. (2004) also found an increase in the expected re-arrest frequency for juveniles who were older at release. There is a strong relationship between juvenile (re)offending and age.

### *The Multifaceted Importance of Age*

Research shows that the age of offending onset is one of the strongest predictors of a long-term, repeated offending—the earlier the onset age, the worse the prognosis (Cottle, Lee, and Heilbrun, 2001; Forsyth et al., 2014; Gann, Sullivan, and Ilchi, 2015; MacDonald, 1997; Willinius et al., 2016). However, age is just a marker, and not a cause or an indicator of behavioral paths, so individual and social influences working in parallel to age have to be taken into consideration as well (Cottle, Lee, and Heilbrun, 2001; Gann, Sullivan, and Ilchi, 2015; Scott and Steinberg, 2008). The person's age can be seen as a proxy for other factors that might influence their behavior, such as temperament or cognitive skills development (Gann, Sullivan, and Ilchi, 2015). Gann, Sullivan, and Ilchi (2015), in their longitudinal study on serious young offenders in two major US cities, looked at the direct and mediating relationship between onset age and other individual and social factors. They found that the age of onset is a marker for

higher tendency toward delinquency and delinquency related choices (e.g., delinquent peers), but it can also be only one part of the bigger puzzle, together with youth's attitudes and activities (e.g., motivation to succeed, moral disengagement, substance use), that increases the likelihood of becoming a serious long-term offender.

Age and crime are related in many ways. There are youth that commit crime as a part of their adolescent experimentation (adolescent-limited behavior), and those that will continue committing crimes despite their developmental stage (life-course displayed behavior) (Forsyth et al., 2014; Moffitt, 1993). Experimenters exhibit disruptive behaviors only within a certain developmental stage, usually influenced by situational factors, and they eventually age out of such behaviors, while persisters get involved in problem behaviors at more than one point in their lives and usually become more serious as they get older (Cottle, Lee, and Heilbrun, 2001; Forsyth et al., 2014; Moffitt, 1993). Criminologists and sociologists refer to this phenomenon as the age-crime curve—criminal behavior follows a predictable course with regard to age. According to Moffitt (1993), the continuity of antisocial behavior over age is impressive, but since adolescence is the sensation seeking period, involvement in crime during that period increases almost tenfold. For most juveniles, childhood and early adolescence are crime-free, the incidence of criminal behavior increases sharply around ages of sixteen or seventeen, and from seventeen onward there is a steep decline in the prevalence of anti-social and disruptive behaviors (Moffitt, 1993; Scott and Steinberg, 2008; Willinius et al., 2016). The age-crime relationship holds true irrespective of the offender's gender and type of crime, or the time and geography of the crime (Moffitt, 1993).

Bearing in mind the research on onset age, criminal history, school misbehavior, and future reoffending propensity, it is crucial to start effective interventions with detained children as soon as possible, to prevent them from going deeper in the system, and to change their cognitive-

behavioral patterns while they are still malleable, hopefully diverting their future criminal behavior. The next section will provide the reader with an overview of the effective practices with institutionalized juvenile population, and introduce the treatment program used in the facility presented in this study.

### **Evidence-Based Practices and Thinking for a Change Program**

Evidence-based corrections use research to implement guidelines, guide practices, and evaluate the performance of programs and agencies (MacKenzie, 2000). We know that some programs work with some offenders in some situations (MacKenzie, 2000). According to Andrews (2006), effective treatment should be based on psychological theory of criminal behavior, instead of on a biological, behavioral, sociological, psychological, or legal perspective on justice, social equality, or crime rates. Evidence-based programs should be implemented and delivered with integrity regarding (1) the underlying theory, (2) selection, training, and supervision of the staff, (3) consultation services for supervisors, (4) monitoring of intermediate service processes and intermediate change, (5) and adequate dosage/intensity (Andrews, 2006). Despite the overall effectiveness of evidence-based approaches, factors related to program implementation—particularly program duration, may affect the outcomes (Landenberger and Lipsey, 2005).

Evidence-based practices put a high emphasis on program evaluation. However, many institutions lack this part in their programming, and create the “evidence” and “facts” based on their own experiences, which more often than not, turn out to be wrong (MacKenzie, 2000). MacKenzie (2000) discovered how little information correctional administrators use in their decision-making process during her study on 47 juvenile correctional facilities. Fewer than ten percent of the administrators were able to provide her with the information about what happened

to youth who left their institutions—whether they were re-arrested, employed, or back to school; the administrators had no evidence if their rehabilitative practices had any effects (MacKenzie, 2000).

Evidence-based corrections focus on the principles of effective intervention and the risk-need-responsivity principle developed by Andrews and Bonta. The principles of effective intervention recognize the importance of individual differences in criminal behavior; the differences that can be predicted and changed through effective treatment (Andrews, 2006). The risk principle assumes the predictability of criminal behavior and matches the intensity of treatment services to the offender's risk level; the needs principle underscores the importance of targeting criminogenic needs and providing treatment, preferably cognitive-behavioral treatment; and the responsivity principle suggests that treatment should be delivered in a way that is consistent with the offender's ability and learning style (Andrews, 2006; Hannah-Moffat, 2005). Hannah-Moffat (2005) and Smith, Gendreau, and Swartz (2009) also mention the fourth principle, the principle of professional discretion or the principle of program integrity, which strategically reasserts the importance of retaining professional judgment when working with correctional populations.

Criminal risk can be assessed by looking at the series of static, unchangeable factors, such as previous charges, sentence types, sex offending history, detention criteria, and the number and severity of prior convictions (Hannah-Moffat, 2005). Assessing the needs, on the other hand, requires deeper insight into individuals' background, their characteristics, relationships, and environmental determinants (Hannah-Moffat, 2005). Andrews' big four criminogenic needs in offending refer to (1) antisocial behavior, (2) antisocial personality, (3) antisocial attitudes, values, and beliefs, and (4) antisocial peers. Together with family/marital circumstances,

school/work performance, leisure/recreation activities, and substance abuse patterns, they create the central eight factors of recidivism. A common misconception with needs is focusing the intervention on needs that are not criminogenic, such as the need to be a better person or the need to raise client's self-esteem (Hannah-Moffat, 2005). Criminogenic needs are demonstrated by research to be related to future criminal behavior. They refer to the offenders' need to have a place to stay, ability to find a job, and/or the need to stop using drugs, and by targeting those needs programs enable the offenders to start leading a productive, crime-free life (Hannah-Moffat, 2005). Cognitive-behavioral programs are shown effective in targeting criminogenic needs of correctional population and in diverting their future criminal behavior.

### *Cognitive-Behavioral Programs*

One notable characteristic of chronic offenders is their distorted cognition; they are prone to misinterpretation of social cues, insufficient moral reasoning, ideas of entitlement and dominance, and likelihood of self-justificatory thinking (Lipsey, Chapman, and Landenberger, 2001). Such offenders may respond to benign situations as if they were threatening, and justify their anti-social behavior by convincing themselves that the world is against them, so they should punish people and rebel against society (Lipsey, Chapman, and Landenberger, 2001). Cognitive-behavioral programs teach participants how to manage their criminogenic needs and correct their dysfunctional and criminogenic thinking patterns by providing them with skills, abilities, and attitudes needed for a pro-social life (Hannah-Moffat, 2005; Lipsey, Chapman, and Landenberger, 2001). There is a massive body of evidence showing that cognitive-behavioral interventions have a positive impact on individual's thinking and behavior, and reduce recidivism when delivered to adult or juvenile offenders (Andrews, 2006; Landenberger and Lipsey, 2005; Lipsey, Chapman, and Landenberger, 2001; Pearson, Lipton, Cleland, and Yee, 2002; Wilson,

Bouffard, and MacKenzie, 2005). Cognitive-behaviorism assumes that cognition affects behavior—by changing and monitoring our cognitive activity, we modify our behavior (Wilson, Bouffard, and MacKenzie, 2005). These therapies help an individual realize the thought processes that lead to maladaptive behaviors and skew them in a positive direction (Wilson, Bouffard, and MacKenzie, 2005).

Cognitive-behavioral therapies (CBTs) include a variety of clinical interventions focusing on social skills training, problem-solving training, rational-emotive therapy, cognitive skills programs, and relapse prevention model, and are often delivered through role-play or real-situation practicing (Lipsey, Chapman, and Landenberger, 2001; Pearson et al., 2002; Wilson, Bouffard, and MacKenzie, 2005). CBTs may focus on anger management, assuming personal responsibility for one's behavior, developing morality and empathy in interpersonal relationships, setting goals in life and developing life skills, or any combination of those (Lipsey, Chapman, and Landenberger, 2001). These programs reward clearly identified, overt behaviors, unlike the non-directive counseling methods focusing on self-esteem (MacKenzie, 2000).

Pearson et al. (2002) conducted a meta-analysis of 69 studies on behavioral and cognitive-behavioral programs, and found that cognitive-behavioral ones are more successful at reducing recidivism than the behavioral ones. Wilson, Bouffard, and MacKenzie (2005) in their meta-analysis of 20 studies on cognitive-behavioral group programs also found CBTs very effective. Lipsey, Chapman, and Landenberger (2001) conducted a more focused meta-analysis examining fourteen studies with general offenders only, measuring recidivism as reoffending. Their study showed the highest effectiveness of CBT programs and lowest odds of recidivating (Lipsey, Chapman, and Landenberger, 2001). Landenberger and Lipsey's (2005) study also found support for cognitive-behavioral treatment, with larger effects in cases where treatment was implemented

properly, administered to high risk offenders, and included interpersonal problem-solving and anger management. Offender characteristics, such as age, gender, ethnicity, and criminal history, may also influence the effectiveness of treatment (Landenberger and Lipsey, 2005). However, Greenwood and Turner (1993) conducted an evaluation of a small, experimental, highly structured program for youth convicted of serious felonies. This program administered high-quality treatment grounded on the principles of effective intervention. The treatment was based on cognitive-behavioral methods with role-plays and discussions, clear incentives and punishments, and a highly formalized behavioral assessment system which guided case managing and individualization of treatment according to client's needs (Greenwood and Turner, 1993). Greenwood and Turner (1993) compared the experimental group with the control group receiving traditional treatment, and found no differences in arrests or self-reported delinquency in a 12-month follow-up. One of the explanations they offered for such results was the mismatch of treatment clients with the staff.

Effective interventions provide a meaningful and substantial contact between participants and staff, address those needs that can be changed, and have integrity (MacKenzie, 2000). Staff should believe offenders can change, know the basics of human services, and think of recidivism reduction as a goal worthwhile pursuing (Andrews, 2006). It comes as no surprise that examination of well-run facilities reveals excellent staff (Inderbitzin, 2006). One of the widely used cognitive-behavioral programs in institutional settings is Thinking for a Change.

#### Thinking for a Change

Thinking for a Change is one of the cognitive-behavioral programs developed by Bush, Glick, and Taymans in 1998, on the principles of effective intervention. The curriculum consists of 25 lessons that teach the participants problem-solving skills aiming to enhance their rationality

and develop pro-social behavior. It is administered through role-playing and social skills modeling, and if implemented correctly it should modify participants' thought processes through cognitive restructuring, and reduce patterns that lead to criminal behavior (Bickle, 2013). This curriculum helps individuals in the criminal justice system take control over their lives by taking control over their thinking (Bush, Glick, and Taymans, 2011).

Thinking for a Change curriculum has three main components—(1) cognitive self-change, (2) social skills, and (3) problem-solving skills. The cognitive part teaches individuals self-reflection strategies to enable them to uncover their antisocial attitudes, values, and beliefs. Through the social skills part, participants learn how to engage in pro-social interactions by understanding their own self and the way their actions affect others. The problem-solving skills portion encompasses the first two, and consists of a step-by-step process that teaches the participants how to address stressful and challenging situations they might encounter (Bush, Glick, and Taymans, 2011). The curriculum consists of 24 lessons and the 25<sup>th</sup> one as a wrap up with the option of aftercare lessons if desired. Sessions should be administered at least twice a week with each session lasting about one to two hours. However, facilitators are encouraged to tailor the duration and frequency of sessions according to their group (Bush, Glick, and Taymans, 2011). Given the nature of the curriculum and the activities it includes, the number of participants in such a group should be over eight individuals, but not exceed 12 (Bush, Glick, and Taymans, 2011; Wilson, Bouffard, and MacKenzie, 2005).

Staff in charge of a variety of roles in the institution can administer the curriculum after they had gone through a credentialing process offered and administered by the Center for Credentialing and Education (Bush, Glick, and Taymans, 2011). Apart from the credentialing process, staff should be empathizing, possess teaching techniques, understand group and



interpersonal dynamics, and have the ability to control the offender population without coercion (Andrews, 2006; Bush, Glick, and Taymans, 2011). The role of staff in rehabilitation and re-socialization of juvenile offenders is even greater, as they represent the main adult figure in the lives of juvenile offenders for the period of their incarceration, serving as their guardians, counselors, parents, and role-models (Inderbitzin, 2006). Programs that are implemented and administered correctly, that have educated staff with a will to target offenders' needs and reduce recidivism, and those founded on evidence-based practices, work in lowering future reoffending (Andrews, 2006).

### **The Current Study**

Historical overview of the juvenile corrections introduced the reader to three main eras in the development of juvenile justice—The Pre-Progressive Era, The Progressive Era, and Contemporary trends. The state has shifted from no involvement in children's lives, to potentially over-involvement through the use of custodial sanctions on juvenile offenders. The punishment trends in juvenile corrections are going back and forth as well, from rehabilitation being the underlying idea behind the formation of the juvenile justice system, through punitiveness, incarceration, and tough-on-crime agenda during the 1980s, to contemporary trends that display anew excitement over rehabilitation, but still (over)use custodial sanctions.

Research on juvenile detention is scarce, and the results published thus far are mixed. There seems to be a plethora of factors impacting juvenile (re)offending. The only consistent factors in prior research are the criminal history and age at first offence. Prior criminality positively affects future offending (Cottle, Lee, and Heilbrun, 2001; Lattimore et al., 2004; Poole and Regoli, 1983; Trulson, 2007; Trulson, DeLisi, and Marquart, 2011). In addition, research shows that youth who have been detained before and were younger at their first offense were

more likely to reoffend (Cottle, Lee, and Heilbrun, 2001; Forsyth et al., 2014; Gann, Sullivan, and Ilchi, 2015; Hannah-Moffat, 2005; Holman and Ziedenberg, 2013; MacDonald, 1997; Poole and Regoli, 1983; Trulson, 2007; Trulson et al., 2005; Willinius et al., 2016). Antisocial and aggressive behavior is shown to be a good predictor of institutional misconduct, but research on institutional misconduct and future offending for juvenile population is scarce (Lattimore et al., 2004; Trulson, 2007; Trulson, DeLisi, and Marquart, 2011; Trulson et al., 2005). Prior research is also not clear on the effectiveness of the length of stay in the institution on recidivism, and shows either no effect or detrimental effect of longer stay (Lipsey, Wilson, and Cothorn, 2000; Loughran et al., 2009; Walker and Bishop, 2016; Winokur et al., 2008; Wooldredge, 1988). However, providing juveniles with cognitive-behavioral treatment while detained, contributes to lower recidivism among youthful offenders (Andrews, 2006; Landenberger and Lipsey, 2005; Lipsey, 2009; Lipsey, Chapman, and Landenberger, 2001; MacKenzie, 2000; Wooldredge, 1988). Overall, scarce research in this area tends to find no clear support for the effectiveness of detention in reducing recidivism of juvenile offenders. This study adds knowledge on this complicated relationship between juvenile detention and recidivism.

This study examines recidivism of juveniles placed in the secure unit of a Midwestern correctional facility during 2013 and 2014. In accordance with the previous research, juveniles with behavioral problems at school, longer criminal histories, more institutional misconduct, and earlier onset age, should be in the institution longer, receive more treatment, and recidivate less. On the other hand, juveniles institutionalized for their first offense and with no previous behavioral issues, are not expected to benefit from the institutional placement, and should recidivate more. In order to bring valuable contributions to the research on juvenile detention thus

far, this study will answer the following question: Do juvenile offenders placed in a secure unit of a juvenile detention center commit less subsequent crime?

### CHAPTER 3: METHODOLOGY

Outcome evaluations look at the results of each individual program, facility, or agency (MacKenzie, 2000), in order to determine whether their practices are working. However, according to MacKenzie (2000), a lot of juvenile facilities fail to provide evidence about the outcome results of their programs. There are very few outcome evaluations of juvenile detention centers (Wooldredge, 1988). Wooldredge (1988) examined the effectiveness of various different court dispositions on juvenile recidivism and found that doing something is usually better than doing nothing (case dismissed with legal guilt supported). However, with regard to detention, he found that longer terms of detention might be counter-productive, and if detention is used it should be for a short period of time (Wooldredge, 1988). McGrath and Weatherburn (2012) compared a sample of juvenile offenders in custody to a matched group of offenders in community-based sanctions. They found no differences in reoffending between the two groups, concluding that custodial sentence had no effect on recidivism (McGrath and Weatherburn, 2012). Gordon (2002) compared the effectiveness of an intensive institutional treatment program for juvenile drug users to treatment “as needed”, and found fewer convictions for the treatment group, but a higher number of reported substance use incidents and substance related charges. Greenwood and Turner (1993) matched juveniles in a small, highly structured treatment program to juveniles in treatment as usual, and found no significant differences in arrests or self-reported delinquency between the two groups during a one-year follow-up. This study will broaden the pool of knowledge by examining the recidivism data for institutionalized juveniles, and comparing future recidivism of detention juveniles to recidivism of juveniles in treatment.

## **Data**

This study used secondary data given to the researcher by the institution. The institution collects the data as a part of their regular, day-to-day operation. Every juvenile in the institution is given a unique identification number during the intake procedure. This study was thus able to track the same participants before and after their 2013 and/or 2014 admission, without obtaining any personal or discriminatory information. This outcome evaluation was reviewed and approved by the North Dakota State University Institutional Review Board.

## **Sample**

This longitudinal study examined the adolescents admitted to a secure unit of a juvenile detention center located in Minnesota. The center is divided into a secure and a non-secure unit, housing court referred female and male juveniles ages 10-19 primarily from the Cass-Clay County. Data for this study comprised all admissions to the secure unit of the institution from January 1, 2013 to December 31, 2014.

The total number of admissions for the period of interest was 545. The number of admissions does not necessarily correspond with the number of delinquents admitted during the same period. For example, if the same delinquent was in the institution three times, he/she was counted as three admissions instead of one. However, multiple intakes for the same purpose (i.e., serving one sentence only during weekends) were counted as one admission, taking the last weekend as a reference point for follow-up. After removing the weekenders, the sample had 526 cases. Admissions with the sole purpose of providing accommodation while the delinquent was in transit to another institution or for private reasons (for example, staying in the institution while waiting for the transit to other state, or while attending father's funeral) were also omitted from further analyses (n=9). After removing the in-transit admissions, the remaining sample size was

517. From those, five more were removed since they did not have a minimum of 24 months post-release follow-up at the time of data analyses. The final number of cases in the sample was 512.

This study further examined the two sub-samples of the secure unit population: juveniles in the detention program and juveniles in the treatment program. There were 484 detention juveniles, and 28 treatment juveniles in the sample. All treatment program participants received Thinking for a Change curriculum, regardless of the length of their stay. The program operated three times a week, and juveniles were included on a rolling basis as they were admitted to the institution. The detention program population did not receive Thinking for a Change curriculum at any point during their stay. However, they participated in social skills groups, provided they were in the institution when the group was taking place.

### **Study Design**

This study used a longitudinal design to examine recidivism of the youth cohort entering the secure unit of the institution in 2013 and 2014, and evaluated the effectiveness of this juvenile detention in reducing future crime. It followed this cohort and tracked whether and when each offender has recidivated, for every admission. Minimum follow-up period for this study was 24 months per admission, and the results of the detained youth were compared to the results of treatment youth.

This study adds to the scarce pool of knowledge regarding the effectiveness of a correctional placement in a secure unit on recidivism, and answers the following research question: Do juvenile offenders placed in a secure unit of a juvenile detention center commit less subsequent crime?

## Measures

### *Independent Variables*

Prior research has continuously found a positive relationship between past and future offending (Cottle, Lee, and Heilbrun, 2001; Holman and Ziedenberg, 2013; Lattimore et al., 2004; Poole and Regoli, 1983; Trulson, 2007; Trulson, DeLisi, and Marquart, 2011), underscoring the importance of including the criminal history variables in recidivism studies. This study takes into account (1) age at first admission to the juvenile justice institution, (2) whether first admission was for non-criminal reasons, and (3) the existence of prior admissions for each admission in the sample.

#### Age at First Admission

Age at first admission was a continuous variable, measured in years. First admission was operationalized as the first time a juvenile was admitted to the institution, either to a non-secure unit (for status offenses, emergency and/or safety issues, or other) or to a secure unit (due to criminal involvement or pending charge/investigation).

#### First Admission Non-Secure

According to prior research, misbehavior and school issues, such as truancy, acting out, and runaways, can be significant predictors of future recidivism (Forsyth et al., 2014; Holman and Ziedenberg, 2013; Willinius et al., 2016). This study captured, as a dichotomized variable, whether the juvenile's first admission was to a non-secure unit of the institution, for non-criminal behaviors (0-no, 1-yes).

### Prior Admissions

This study measured prior admissions as a dichotomous variable indicating whether there was at least one admission to the institution, either to a secure or to a non-secure unit, prior to the 2013/2014 admission.

### Length of Stay

Prior research provided mixed results with regard to the length of stay in detention and recidivism. Some studies supported shorter stay; some found no difference (Loughran et al., 2009; Poole and Regoli, 1983; Walker and Bishop, 2016; Winokur et al., 2008; Wooldredge, 1988). Despite some research measuring the length of stay in days and some in months, given the overall shortness of detention for this sample this study measured length of stay in days. Since very few offenders stayed in the institution longer than three months, expressing the length of stay in any unit greater than days would provide too little variance.

### Institutional Misconduct

Given the scarcity of research on the relationship between misconduct in juvenile institutions and recidivism, this study expands on the current knowledge in the field by including this variable in the outcome evaluation. This study measured institutional misconduct as a continuous variable, counting the number of the highest institutional sanction received for each admission to the secure unit in 2013 and/or 2014.

### Treatment

Research shows that juveniles who were provided treatment in detention had better success rates than those who were simply locked up (Andrews, 2006; Landenberger and Lipsey, 2005; Lipsey, 2009; Lipsey, Chapman, and Landenberger, 2001; MacKenzie, 2000; Wooldredge, 1988). However, Gordon (2002) and Greenwood and Turner (1993) did not find significant



improvements of treatment groups in their samples. This study captured the variance between the treatment group and the detention group in the sample of institutionalized offenders, by introducing a dichotomous variable indicating whether the offender was in the treatment group during their stay (0-no, 1-yes).

### *Control Variables*

#### Gender

Although the gender gap in offending is narrowing, the majority of offenders in the juvenile justice system are males (McGrath and Weatherburn, 2012; U.S. Department of Justice, 2016). Males are also more likely to reoffend (McGrath and Weatherburn, 2012; Trulson et al., 2005), making gender an important variable to look at when examining recidivism among juveniles. Gender in this study was a dichotomous variable (0–female, 1–male).

#### Race

This study measured race as a categorical variable, discerning between White, American Indian/Alaskan Native, African American, and Other (0–White, 1–American Indian/Alaskan Native, 2–African American, 3–Other).

#### Age at Current Offense (Age at admission)

Age at current offense was a continuous variable measured in years, representing the age of the offenders at their admission to the secure unit during the 2013 and/or 2014.

### *Dependent Variable*

This study examined the recidivism of participants entering a secure unit of the institution in 2013 and/or 2014. This study's minimum follow-up was 24 months after release for each admission, counting from the date of release. Recidivism, the variable of interest, was operationalized as readmission.

## Readmission

Readmission was measured as a dichotomous variable indicating whether the offender had any subsequent, post-release admissions to the secure unit of the institution, at any point during the 24 months' follow-up (0-no, 1-yes).

## **Analysis**

The primary purpose of this study was to elucidate the relationship between secure detention and recidivism on a sample of Midwestern juveniles, by examining the recidivism of young offenders placed in the juvenile correctional facility. In addition, this study examined the differences in recidivism between the two subsamples of the institutionalized juveniles (treatment and detention population), with regard to the prior admissions, average length of institutional stay, frequency of institutional misconduct, and the exposure to treatment.

Data in this study was analyzed using the SPSS program. This study employed frequencies and bivariate statistics (i.e., t-tests, chi-squares) to determine the dispersion of the variables and differences across the two subsamples. Next, this study examined the potential correlations between the variables. Lastly, multivariate binary logistic regression techniques were used to examine differences in recidivism and test the hypotheses. This study will first give an overview of the frequencies for the demographic variables and the independent variables examined.

## **Hypotheses**

Based on the prior research and stemming from a thorough independent and combined analysis of the control and predictor variables described in the previous section, the hypotheses for this study are as follows:

- 1) Juveniles with previous residential placement will have higher recidivism than the first time detainees.
- 2) Juveniles with longer correctional placement will recidivate more.
- 3) Juveniles with higher numbers of internal institutional sanctions will display higher recidivism.
- 4) Juveniles receiving Thinking for a Change program will recidivate less than juveniles not exposed to the treatment program.

## CHAPTER 4: ANALYSIS

### Demographic Characteristics

Table 1 provides an overview of the sample's demographic characteristics. The majority of the sample was comprised of juveniles in detention only; juveniles who did not receive any treatment for the duration of their stay (94.53%). The age range of all the juveniles in the institution for 2013 and 2014 admissions was from ten to nineteen, with the mean age being 15.61 years and a standard deviation of 1.62 years. The most numerous categories were the 17-year-olds (26.56%), followed by the 16-year-olds (23.43%), and the 13-14-year olds (19.73%). Juveniles ages 12 and under accounted for less than four percent of the total sample (3.91%). The age dispersion in the detention only subsample is quite similar for the three most frequent categories, with the mean age being 15.56 years. However, all of the juveniles ages 12 and under were in this subsample (4.13%); none of them were in treatment. In addition, juveniles in the treatment subsample were significantly older, with the mean age of 16.50 years ( $t=3.77^*$  years,  $p<0.01$ ). Almost 40 percent of the treatment group were 17-year-olds (39.29%) and over a quarter of the subsample were 16-year-olds (28.57%). The category "18 and above" was equally represented as the fifteen-year-olds (14.29%).

Table 1 also displays information on gender. Males accounted for about 80 percent of the total sample and of the juveniles in the detention group (79.69% and 78.93%, respectively). The treatment group was almost exclusively male, with 13:1 male-to-female ratio. Given the small sample size of the treatment group ( $n=28$ ), males represented 92.86 percent of this subsample.

Table 1

*Demographics of the Total Sample, and the Detention and Treatment Subsamples*

	Total Sample		Detention Only		Treatment Only		Test-statistics
	N	%	n	%	n	%	
Total	512	100.00	484	94.53	28	5.47	
Age (at admission)							t = -3.77*
12 and under	20	3.91	20	4.13	0	0.00	
13-14	101	19.73	100	20.66	1	3.57	
15	92	17.97	88	18.18	4	14.29	
16	120	23.43	112	23.14	8	28.57	
17	136	26.56	125	25.83	11	39.29	
18 and above	43	8.40	39	8.06	4	14.29	
	$\bar{X} = 15.61$		$\bar{X} = 15.56$		$\bar{X} = 16.50$		
	SD = 1.62		SD = 1.62		SD = 1.26		
	Min-max = 10-19		Min-max = 10-19		Min-max = 13-19		
Gender							$\chi^2=3.17$
Male	408	79.69	382	78.93	26	92.86	
Female	104	20.31	102	21.07	2	7.14	
Race							$\chi^2=1.34^+$
White	335	65.43	316	65.29	19	67.86	
American Indian/Alaskan Native	102	19.92	96	19.83	6	21.43	
African American	53	10.35	50	10.33	3	10.71	
Other	22	4.30	22	4.55	0	0.00	

\*2 cells (25.0%) have expected count less than 5. The minimum expected count is 1.20

Table 1 indicates that the majority of juveniles in the total sample were White (65.43%). American Indians/Alaskan Natives comprised the second largest racial/ethnic group, contributing to around twenty percent of the total sample (19.92%). Roughly 10 percent of the total sample were African-Americans (10.35%). The racial distribution followed a similar pattern in detention and treatment subsamples, with Whites being a majority, followed by the American Indians/Alaskan Natives, and African-Americans contributing to about one tenth of each of the subsamples.

## Frequencies of the Predictor Variables

### *Age at First Admission*

Prior research indicated the importance of the age at first offence in future criminal behavior (Cottle, Lee, and Heilbrun, 2001; Forsyth et al., 2014; Gann, Sullivan, and Ilchi, 2015; MacDonald, 1997; Willinius et al., 2016). For this sample, age at first admission ranged from 10 to 19, with a mean of  $\bar{x}=14.62$  years and a standard deviation of 1.82 years. However, examination of the correlation matrix in Table 2 indicated high correlation between the age at first admission and the age at current admission ( $r=0.72^{**}$  at the 0.01 level), leading to the omission of this variable from further analyses to reduce the possibility of biasing regression estimates as a result of multicollinearity. Further multicollinearity diagnostics were inspected for the regression analyses.

Table 2

*Correlation Matrix of Independent and Control Variables*

		Gender	Race	Age at admission (in years)	Prior admissions (yes/no)	Age at first admission	First admission non-secure	Length of stay	Treatment	DRT total	Recidivism
Gender	Pearson's r	1									
Race	Pearson's r	0.03	1								
Age at admission (in years)	Pearson's r	0.02	-0.04	1							
Prior admissions (yes/no)	Pearson's r	0.04	0.08	0.19**	1						
Age at first admission	Pearson's r	-0.04	-0.13**	0.72**	-0.30**	1					
First admission non-secure	Pearson's r	-0.04	0.25**	-0.03	0.43**	-0.31**	1				
Length of stay	Pearson's r	0.11*	-0.05	0.12**	0.15**	-0.00	0.03	1			
Treatment	Pearson's r	0.08	-0.03	0.13**	0.06	0.05	0.02	0.73**	1		
DRT total	Pearson's r	0.07	0.02	-0.02	0.06	-0.07	0.02	0.50**	0.35**	1	
Recidivism	Pearson's r	0.07	0.08	-0.11*	0.20**	-0.22**	0.18**	-0.01	0.02	-0.02	1

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\* . Correlation is significant at the 0.01 level (2-tailed).

*Prior Admissions*

Table 3 gives an overview of the frequencies of the independent variables used in this study. The first variable presented pertains to prior admissions. Prior admissions were measured as a dichotomous variable, and as a continuous variable, and ranged from zero to 22 for the total sample and the detention group, and from zero to 12 for the treatment group, with the mean being around two for all three groups ( $\bar{x}=2.24$ ,  $\bar{x}=2.22$ , and  $\bar{x}=2.61$ , respectively). About 60 percent of the total sample, as well as of the detention group, had at least one prior admission (58.59% and 57.85%, respectively). For the treatment group, this percentage was higher

(71.43%). However, the independent samples t-test did not find significant differences in means for the prior admission between the detention and the treatment subsamples ( $t=-0.59$ ,  $p=0.55$ ).

### *Length of Stay*

Length of stay was a continuous variable measured in days, with a minimum of zero and a maximum of 213 days in the institution. Table 3 shows the range for each subsample. The minimum stay for the treatment group was 59 days, but only 4.75 percent of the detention group fell into this bracket. Given this results, it comes as no surprise that days in the facility were highly correlated with treatment ( $r=0.73^{**}$ ; see Table 2). On the other hand, about one quarter of the total sample, as well as of the detention sample, spent zero or one day in the facility (23.43% and 24.79%, respectively). The vast majority of juveniles in the total sample and detention subsample spent less than ten days in the facility (68.75% and 72.73%, respectively). Consequently, the independent samples t-test was significant at  $t=-11.93^{**}$  ( $p<0.01$ ), indicating that the detention only juveniles spent significantly less time in the institution. These findings were expected, given the initial differences in length of stay between the two subsamples.



Table 3

*Frequencies of the Independent Variables for the Total Sample and the Two Subsamples*

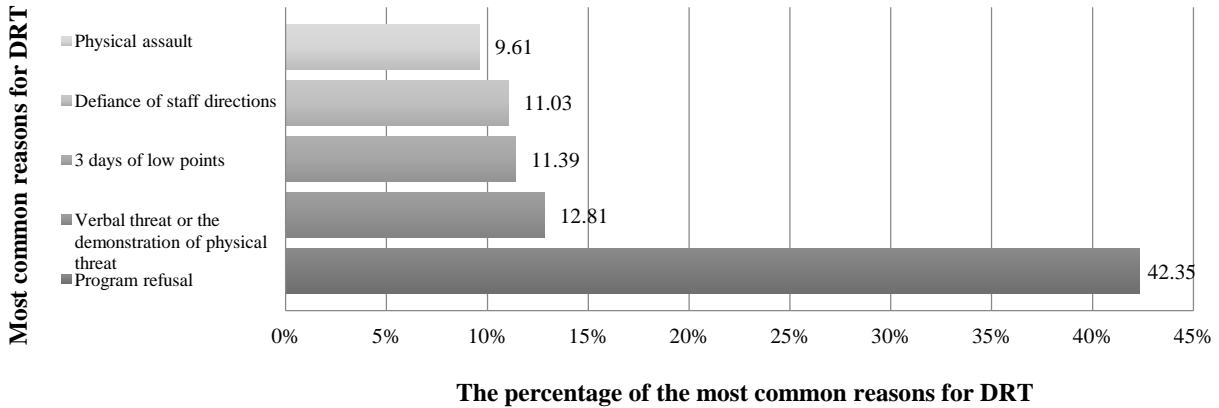
		Total Sample		Detention Only		Treatment Only		
		N	%	n	%	n	%	$\chi^2 = 2.01$
Prior admissions	<i>Yes</i>	300	58.59	280	57.85	20	71.43	
	<i>No</i>	212	41.41	204	42.15	8	28.57	
	<hr/>							
Prior admissions (continuous variable)								$t = -0.59$
	<i>0</i>	212	41.41	204	42.15	8	28.57	
	<i>1</i>	89	17.38	82	16.94	7	25.00	
	<i>2</i>	63	12.30	58	11.98	5	17.86	
	<i>3-5</i>	81	15.82	78	16.12	3	10.71	
	<i>6 or more</i>	67	13.09	62	12.81	5	17.86	
		$\bar{x} = 2.24$		$\bar{x} = 2.22$		$\bar{x} = 2.61$		
		SD = 3.36		SD = 3.37		SD = 3.20		
		Min-max = 0-22		Min-max = 0-22		Min-max = 0-12		
<hr/>								
Length of stay								$t = -11.93^{**}$
	<i>0</i>	27	5.27	27	5.58	0	0.00	
	<i>1</i>	93	18.16	93	19.21	0	0.00	
	<i>2</i>	48	9.37	48	9.92	0	0.00	
	<i>3</i>	43	8.40	43	8.88	0	0.00	
	<i>4-5</i>	59	11.52	59	12.19	0	0.00	
	<i>6-7</i>	49	9.57	49	10.12	0	0.00	
	<i>8-10</i>	33	6.45	33	6.82	0	0.00	
	<i>11-58</i>	109	21.29	109	22.52	0	0.00	
	<i>59 or more</i>	51	9.96	23	4.75	28	100.00	
		$\bar{x} = 17.11$		$\bar{x} = 11.77$		$\bar{x} = 109.39$		
		SD = 30.62		SD = 19.13		SD = 43.05		
		Min-max = 0-213		Min-max = 0-127		Min-max = 59-213		
<hr/>								
Institutional misconduct								$\chi^2 = 59.72^{**}$
	<i>Yes</i>	98	19.14	77	15.91	21	75.00	
	<i>No</i>	414	80.86	407	84.09	7	25.00	
<hr/>								
Institutional misconduct (continuous variable)								$t = -3.73^{**}$
	<i>0</i>	414	80.86	407	84.09	7	25.00	
	<i>1</i>	53	10.35	47	9.71	6	21.43	
	<i>2-5</i>	32	6.25	23	4.75	9	32.14	
	<i>6 or more</i>	13	2.54	7	1.45	6	21.43	
		$\bar{x} = 0.55$		$\bar{x} = 0.38$		$\bar{x} = 3.50$		
		SD = 2.02		SD = 1.64		SD = 4.40		
		Min-max = 0-27		Min-max = 0-27		Min-max = 0-15		
<hr/>								
Note: the percentages do not always add up to 100 due to rounding								

### *Institutional Misconduct*

Table 3 also presents data on the institutional misconduct. One of the greatest variations between the detention and the treatment group was related to this variable. Institutional misconduct was measured as the number of times disciplinary room time (DRT) has been issued per admission. DRTs are the harshest punishments available in the institution, usually given for major rule violations. DRT sanctions have to be monitored and their prevalence is reported to the state department of corrections.

Looking at the total sample, one fifth of the admissions had at least one DRT assigned (19.14%) during the time spent in the institution. However, three quarters of the treatment sample had at least one DRT (75.00%), but only 15.91% of detention youth were on DRTs while in the institution. The independent samples t-test showed significant differences in means for the two subsamples—detention youth received about 3.8 less institutional sanctions per admission. The most probable explanations for these findings are the small sample size of the treatment juveniles (n=28) and the significantly longer length of stay in the institution for this subsample.

During the course of this study, there was a total of 281 DRTs assigned. The maximum number of DRTs per one admission for the total sample and the sample of detention juveniles was 27, whereas treatment juveniles received a maximum of 15 DRTs per admission. The most common reasons for assigning DRTs are presented in Figure 1.



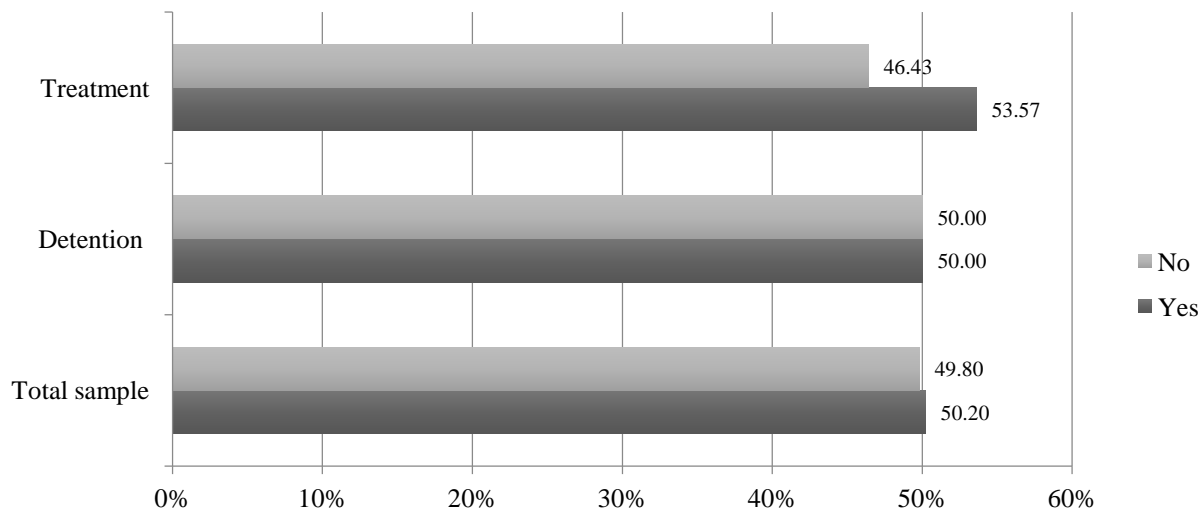
*Figure 1. Most Common Reasons for DRT*

By far the most common reason for getting a DRT was program refusal (42.35%). Program refusal includes refusing to participate in, walking out of, or being removed from the school, social skills group, and/or treatment group. It also indicates a complete refusal of programming demonstrated by juvenile's unwillingness to get out of bed, shower, and complete their daily routine. The second most frequent category (12.81%) was verbal threats toward staff or peers, or the demonstration of physical threat (i.e., standing up straight, puffing up, clenching fists). Having three days of low points and the defiance of staff directions ranked similarly (11.39% and 11.03%, respectively). Three days of low points refers to either three consecutive days of getting a low grade at school or failing a day three times in a row (through a specific point system the institution has in place). Almost ten percent of DRTs were assigned due to actual physical fights, either against the staff or against peers (9.61%).

### *Recidivism*

Recidivism was measured as a dichotomous variable indicating any new admission to the secure unit of the institution within the 24-month period. Figure 2 presents the breakdown of additional admissions for the total sample, and the detention and treatment subsamples. For the

total of 512 admissions, about a half of the sample recidivated (50.20%). Looking only at the detention population, the recidivism ratio was exactly 50:50. For treatment admissions, a little over a half of the sample recidivated (53.57%). Since the unit of analysis is admissions, and not individual delinquents, this does not immediately mean that juvenile detention had a 50 percent success. Additional analyses are needed to reach the conclusion about the effectiveness of juvenile detention in reducing recidivism.



**The percentage of readmissions by subsamples**

*Figure 2.* Breakdown of Readmissions by the Total Sample and Subsamples

### Regression Analyses

This study ran six different binary logistic regression models to find out whether placement in the secure unit of a juvenile correctional institution affects recidivism and what other factors might have played a role in this interaction. Model 1 was the baseline model; it included only the demographic variables. Every other model included one independent variable and examined the model improvement. Model 6 was the full model, with all the control and predictor variables together. These models are presented in Table 4.

Model 1 examined the relationship between demographic variables and recidivism. Age at admission was the only significant variable in this model. Younger juveniles were significantly more likely to be readmitted ( $B=-0.13^*$ ,  $p<0.05$ ); for each one unit increase in age, juveniles were 12 percent less likely to be readmitted compared to juveniles who were younger at admission. This is supported by prior research suggesting that the younger the offenders at admission, the longer their criminal path. The baseline model had a chi-square of 11.39\* ( $p<0.05$ ), explaining about three percent of variation above chance alone (Nagelkerke  $r^2=0.03$ ).

Table 4  
Binary Logistic Regression Models (n=512)

Variable	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6		
	B	Sig.	Exp(B)	B	Sig.	Exp(B)	B	Sig.	Exp(B)	B	Sig.	Exp(B)	B	Sig.	Exp(B)	B	Sig.	Exp(B)
Gender (0=female)	0.35	0.12	1.42	0.33	0.16	1.38	0.35	0.12	1.41	0.36	0.11	1.43	0.34	0.13	1.40	0.35	0.13	1.41
Race (0=White)		0.42			0.67			0.42			0.42			0.42			0.68	
<i>American Indian/Alaskan Native</i>	0.08	0.73	1.08	0.03	0.90	1.03	0.08	0.73	1.08	0.09	0.71	1.09	0.08	0.74	1.08	0.03	0.90	1.03
<i>African American</i>	0.44	0.14	1.56	0.32	0.31	1.37	0.45	0.14	1.56	0.45	0.14	1.57	0.44	0.14	1.56	0.32	0.32	1.37
<i>Other</i>	0.42	0.35	1.52	0.37	0.42	1.45	0.42	0.35	1.53	0.42	0.35	1.52	0.44	0.33	1.55	0.37	0.43	1.44
Age at admission (years)	-0.13*	0.02	0.88	-0.19**	0.00	0.82	-0.13*	0.02	0.88	-0.13*	0.02	0.88	-0.14*	0.02	0.87	-0.20**	0.00	0.82
Prior admissions (0=no)	-	-	-	0.95**	0.00	2.58	-	-	-	-	-	-	-	-	-	0.99**	0.00	2.69
Length of stay (days)	-	-	-	-	-	-	0.00	0.97	1.00	-	-	-	-	-	-	-0.00	0.36	1.00
DRTs (continuous)	-	-	-	-	-	-	-	-	-	-0.03	0.45	0.97	-	-	-	-0.05	0.36	0.95
Treatment (0=no)	-	-	-	-	-	-	-	-	-	-	-	-	0.24	0.54	1.27	0.74	0.21	2.10
Constant	1.70	0.06	5.47	2.17*	0.02	8.71	1.70	0.06	5.48	1.72	0.05	5.60	1.76*	0.05	5.83	2.32*	0.01	10.22
	X <sup>2</sup> =11.39			X <sup>2</sup> =36.33**			X <sup>2</sup> =11.39			X <sup>2</sup> =11.97			X <sup>2</sup> =11.76			X <sup>2</sup> =39.22**		
	Nagelkerke r <sup>2</sup> =0.03			Nagelkerke r <sup>2</sup> =0.09			Nagelkerke r <sup>2</sup> =0.03			Nagelkerke r <sup>2</sup> =0.03			Nagelkerke r <sup>2</sup> =0.03			Nagelkerke r <sup>2</sup> =0.10		

\*p<0.05, \*\*p<0.01

### *Test of Hypothesis One*

Based on previous research, this study hypothesized that juveniles with previous residential placement will have higher recidivism than the first time detainees. To test that, Model 2 added prior admissions to the baseline model. Table 4 indicates that prior admissions were significantly and positively related to future admissions at  $B=0.95^{**}$  ( $p<0.01$ ). Juveniles with a previous admission were 2.58 times more likely to have a future admission into secure detention. Age at admission stayed negatively and significantly related to recidivism in this model ( $B=-0.19^{**}$ ,  $p<0.01$ ). Prior admissions significantly improved the baseline model, explaining nine percent of the variation beyond chance alone, with chi-square of  $36.33^{**}$  ( $p<0.01$ ). Prior admissions remained significant when added to the full model ( $B=0.99^{**}$ ,  $p<0.01$ ). In the full model, juveniles with prior admissions were 2.69 times more likely to be re-admitted to the institution. These findings lend support to hypothesis one that juveniles with previous residential placement will have higher recidivism than the first time detainees.

### *Test of Hypothesis Two*

Model 3 tested the assumption of the second hypothesis that juveniles with longer correctional placement will recidivate more. Adding length of stay to the baseline model did not improve the model ( $\chi^2=11.39$ , Nagelkerke  $r^2=0.03$ ). Table 4 shows that the only significant variable in this model was age at admission, the same as in the baseline model. Length of stay was not significant in the full model either. Overall, model 3 did not support the second hypothesis of this study; the length of correctional placement did not play a role in recidivism.

### *Test of Hypothesis Three*

DRTs were added in Model 4 to test the prediction of hypothesis three—juveniles with higher numbers of internal institutional sanctions will display higher recidivism. Once again, the

predictive validity of this model did not significantly improve compared to the baseline model ( $\chi^2=11.97$ , Nagelkerke  $r^2=0.03$ ), nor did this variable become significant in the full model. Contrary to predictions, juveniles with higher numbers of internal institutional sanctions did not display higher recidivism. Age at admission stayed significant in this model at  $B=-0.13^*$  ( $p<0.05$ ).

#### *Test of Hypothesis Four*

The last hypothesis of this study was that juveniles receiving Thinking for a Change program will recidivate less than juveniles not exposed to the treatment program. To test for this hypothesis, the treatment variable was included in Model 5. The overall strength of the model did not significantly improve ( $\chi^2=11.76$ , Nagelkerke  $r^2=0.03$ ). The only significant variable was once again age at admission ( $B=-0.14^*$ ,  $p<0.05$ ), indicating that regardless of treatment younger juveniles tend to recidivate more. When examining the full model, treatment was, once again not significant. This result does not support hypothesis four; juveniles receiving Thinking for a Change program will not recidivate less than juveniles not exposed to treatment.

#### *Full Regression Model*

Model 6 represents the full binary logistic regression model with all the variables of interest included. This model was significant with  $\chi^2=39.22^{**}$  ( $p<0.01$ ), and it explained ten percent of the variance beyond chance alone (Nagelkerke  $r^2=0.10$ ). In this model, similar to the individual models, age at admission and prior admissions were significant predictors of readmission. For each one unit increase in age, there was a 13 percent lower likelihood of recidivating ( $B=-0.20^{**}$ ,  $p<0.01$ ). Juveniles with prior admissions were 2.69 times more likely to have additional intake to a secure unit ( $B=0.99^{**}$ ,  $p<0.01$ ). Variables that were not significant in their respective models were not significant in the full model either. Variance Inflation Factor



(VIF) collinearity diagnostics were inspected and all variables in Model 6 were less than three. Collinearity was not an issue with these data. The reader is referred to Appendix A for full diagnostics table.

This study examined the impact of juvenile detention on future recidivism. To test for the independent effects of each variable of interests, this study added one variable at a time to the baseline model and ran the binary logistic regression. The only significant variable throughout all the models was age at admission. Of the other variables independently tested, only prior admissions significantly improved the predictive validity of the baseline model. The predictive validity of age at admission and prior admissions held true in the full model as well. Limitations of this study and future implications are discussed next.

## CHAPTER 5: CONCLUSION

This study presented findings from an outcome evaluation of a secure unit of one juvenile facility in the Midwest. Using secondary data provided by the institution, this study examined whether detention reduces recidivism of youth. This study also delved into the differences between a detention subsample and a treatment subsample, and compared the two on variables that prior research highlighted as important when examining the population of institutionalized juveniles. This section gives an overview of the main findings of this study, its limitations, implications for future research, and policy implications.

### **Findings and Discussion**

The findings of this study suggest that detention does not reduce recidivism of youth (operationalized as a return to secure detention). This held true even when secure detention was combined with treatment. Recall that hypothesis one of this study was that juveniles with previous residential placement will have higher recidivism than the first time detainees. Results demonstrated that juveniles with previous admissions tended to have higher recidivism within a 24 month follow-up; a finding that supports hypothesis one of this study. The variable for prior admissions was a significant predictor in logistic regression models after controlling for demographics and other explanatory variables. In the full model, juveniles with prior admissions were 2.69 times more likely to be readmitted to the secure unit of the institution than were those without prior admissions. This finding is in accordance with previous research on the relationship between past criminality and future offending (Cottle, Lee, and Heilbrun, 2001; Lattimore et al., 2004; Poole and Regoli, 1983; Trulson, 2007; Trulson, DeLisi, and Marquart, 2011).

Recall from chapter two that prior research on the impact of the length of stay in detention on recidivism provided mixed results. Loughran et al. (2009) found little to no benefit of retaining individuals longer in the institution in terms of lowering their future offending. According to Walker and Bishop (2016), the length of stay was not a significant predictor of recidivism 12 months post-release for a sample of juveniles in a therapeutically oriented juvenile facility. Winokur et al. (2008) found no consistent relationship between the length of stay and recidivism in their sample of almost 17,000 juveniles released to community or aftercare. Use of detention should be limited to short term stay and used for a very small number of specific offender types (Wooldredge, 1988). Hypothesis two of this study was that longer institutional placement would increase recidivism. Similar to the results of past research, the results of this study did not support this hypothesis. Length of stay was not a significant predictor of recidivism in the logistic regression models, neither after controlling for the demographic variables, nor after the inclusion of other explanatory variables in the full model. However, this finding might be due to the overall lack of variation in the length of stay in this dataset. Length of stay was measured as a continuous variable indicated in days, and over two thirds of the sample stayed in the institution for less than 10 days.

Hypothesis three predicted that juveniles with a higher number of internal institutional sanctions would display higher recidivism. Contrary to research on adult offenders (Smith and Gendreau, 2008) and some indications that type of the institution might mediate this relationship in juvenile institutions (Poole and Regoli, 1983), institutional misconduct did not predict readmissions to secure detention. Accordingly, hypothesis three was not supported. Internal institutional misconduct was measured as a continuous variable indicating the number of instances in which the highest institutional sanction, DRT, was administered for each admission.

This variable was not significant in its respective logistic regression model nor in the full model. This might be due to the underlying reasons for application of internal sanctions on juveniles. MacDonald (1997) found the majority of institutional offenses in his study to be miscellaneous offenses that would not be considered criminally liable on the outside. This study found program refusal to be by far the most common reason for DRTs, followed by the verbal threat or the demonstration of physical threat, and three days of low points earned. Although these are major rule violations in the institution, juveniles do not necessarily experience the same amount of structured time and rules to obey on the outside. Their potential issues with following the schedule and being told what to do might take longer to manifest itself outside of the institution, especially if juveniles do not have a job and have already finished high school (or equivalent). In addition, 81 percent of the sample in this study did not have a single DRT during their stay, which might have affected the findings as well. The lack of relationship between the frequency of DRTs and recidivism might also be the result of increased attention that juveniles receive while on DRT. They have to discuss their behavior one-on-one with staff for the duration of their sanction and write thinking reports demonstrating their ability to go back to the daily routine of the institution and socialize with other juveniles. It is possible that some juveniles benefit greatly from those private counseling sessions and use this time to their advantage. Future research is encouraged to examine the instant behavioral change resulting from the DRTs.

Finally, despite the growing number of studies lending support to cognitive-behavioral programs with juvenile and adult populations alike, this study did not find that juveniles receiving Thinking for a Change program recidivated less—contrary to what has been postulated by hypothesis four. Recall that hypothesis four posited that juveniles receiving Thinking for a Change program will recidivate less than juveniles not exposed to the treatment. This finding

might be due to a very small sample size of the treatment juveniles (n=28). It might also reflect the way in which the program was administered; there is a growing body of evidence on the role of program integrity in treatment, especially within the principles of effective interventions framework (Andrews, 2006; Gordon, 2002; MacKenzie, 2000; Smith, Gendreau, and Swartz, 2009). However, this study was limited in scope and was not able to access data on program integrity. The institution did have a 30, 60, and 90-day treatment groups, but the institution did not distinguish between the groups when entering their data. It is possible that juveniles with greater exposure to treatment (i.e., those in the program longer) may have had different results than those with less exposure to treatment; however, the current research was not able to test this given data limitations. To this end, it is important to understand the limitations of this study and suggestions for future improvements.

### **Limitations and Future Implications**

This study has limitations that merit discussion. First, this study examined only one institution in the Midwest. The findings from this study may not be generalizable to other areas of the United States or institutions with a different demographic makeup. Second, this study lacked a control group. Efforts to secure data for a similar group of juveniles who received probation were unsuccessful. Given the lack of data on a comparison group, it is hard to know the true effect of detention on future criminal behavior. Future research is encouraged to replicate this study using a comparison group. Third, using secondary data imposed some restrictions on the operationalization of the dependent variable and the availability of independent variables this study initially aimed to include. The data only provided information on readmissions to this specific institution, not the overall re-arrest data of the individuals. There is a possibility some juveniles were re-admitted to another juvenile institution in the same region

or elsewhere in the country. In addition, this study was not able to draw clear conclusions on whether juveniles classified as non-recidivists for the purpose of this study indeed aged out of crime or simply aged out of the juvenile justice system. Omission of adult offenses is a common oversight in research restricted to records from juvenile corrections (Harris, Lockwood, Mengers, Stoodley, 2011). Juvenile offenders as research subjects enjoy double protection—as juveniles and as offenders. Given the political, technical, and ethical barriers researchers face in obtaining identifiable data for this population, tracking of the same offenders beyond the juvenile system is difficult (Harris et al., 2011). Alternatively, this study could have focused on younger populations in this dataset and track them for a longer period of time, but such procedure would seriously reduce the sample size. Future research is encouraged to find a successful method of bridging the research gap between the two justice systems.

Previous research emphasized the importance of including the age at first admission in research on juvenile recidivism (Cottle, Lee, and Heilbrun, 2001; Forsyth et al., 2014; Gann, Sullivan, and Ilchi, 2015; MacDonald, 1997; Willinius et al., 2016). Due to a high correlation between the age at first admission and age at current admission in this sample, this study used only the age at current admission. According to previous research, there might be some relationship between the antisocial behavior displayed prior to being sentenced to a facility and recidivism (Forsyth et al., 2014; Holman and Ziedenberg, 2013; Willinius et al., 2016). This study aimed to evaluate the importance of the first admission to a non-secure unit for mostly non-criminal reasons (i.e., status offenses) on future offending, but almost three quarters of this sample did not have their first admission to a non-secure. Given the lack of variation in this variable, this study was unable to include it in its analyses. Future research should examine the potential effects of early antisocial behaviors and status offences on later delinquency.

Finally, the reader should interpret some findings of this study with caution. For example, despite the non-significance in this study, the relationship between institutional misconduct and recidivism might still exist. Future research should distinguish between internal sanctions resulting from behaviors that would be criminally liable on the outside from those that are a major violation in the institution but would not be a reason for readmission if displayed in the community. Thinking reports could be used as a source of information on potential attitudinal change in juvenile delinquents after discussing their behavior with treatment staff. This way research might be able to weed out the potential relationship between institutional misconduct and recidivism in juvenile populations. In addition, although this study did not find support for treatment, this does not mean that treatment should be removed from the institution. Such findings might be due to the small sample size of treatment juveniles (n=28) or due to flawed implementation and administration of the program. Sometimes even the most methodologically and theoretically sound programs, designed and developed in accordance with the research, do not produce positive results (Gordon, 2002; Greenwood and Turner, 1993). It is impossible to make firm conclusions without conducting a process evaluation. This study did not have any data on staff qualifications and their “buy-in” into the treatment, program integrity, or the information on the differences in risk-need-responsivity levels of its clients—variables identified as important within the literature on the principles of effective intervention (Andrews, 2006; Gordon, 2002; Latessa, Cullen, and Gendreau, 2002; MacKenzie, 2000; Smith, Gendreau, and Swartz, 2009). Future research should test the impact of treatment on a bigger sample of juvenile delinquents in the institution. It would also be valuable to conduct a process evaluation and examine adherence to treatment curriculum, staff training, treatment dosage, and risk level of the group targeted to determine whether there could have been a flaw in how the treatment was

administered, and to act upon it. From the results of this study, juvenile detention does not reduce recidivism, not even when combined with treatment.

This study was limited in scope based on the data availability. It would have been interesting to include school records (i.e., highest grade attained, suspensions, expulsions) and parental and visitation information (i.e., parental employment, criminal history, involvement in juvenile's life, number of visits) as variables potentially related to recidivism. It would have also been valuable to have mental health and substance abuse history of the delinquents, and more in-depth information on the treatment process (i.e., length of treatment, dosage, lessons covered), in order to understand better the relationship between secure detention and subsequent offenses for this population. Regardless, the findings of this study carry certain policy implications.

#### *Policy Implications*

This study does not lend support to the use of detention in lowering juvenile recidivism—prior admissions had a significant and positive effect on recidivism, which is in accordance with prior research (Cottle, Lee, and Heilbrun, 2001; Holman and Ziedenberg, 2013; Lattimore et al., 2004; Poole and Regoli, 1983; Trulson, 2007; Trulson, DeLisi, and Marquart, 2011). Length of stay was not a significant predictor of readmissions, but previous research on the length of stay tended to show either no effect or iatrogenic effects of longer institutionalization on recidivism. Wooldredge (1988) suggested that detention should be reserved for a specific type of juvenile offenders and limited to a shorter stay. Regardless of such results, detention is still a widely used sanctioning method in juvenile corrections, creating an impetus for future research to further examine the effects of the length of stay on juvenile recidivism in order to better inform sentencing decisions.



Smith and Gendreau (2008) found support for the predictive value of institutional misconduct on future recidivism in adult populations, but this study failed to do so. Since the majority of behaviors targeted for DRTs in this institution are not criminal behaviors, it might be beneficial to implement policies that would distinguish between behaviors, and put a greater emphasis on sanctioning those for which juveniles would be held accountable if performed in the community. Program refusal is a major violation of institutional rules and it interferes with the daily operation of the facility, but once released, juveniles are usually not exposed to the same amount of structure and rules they need to follow. On the other hand, verbal and/or physical threat and physical assault will have tangible consequences if committed on the outside. It might be beneficial to mimic those differences in the institution as well, through differential sanctioning of institutional misconduct that would account for criminal liability once released.

Unfortunately, this study did not have any data on staff qualifications and their “buy-in” into the treatment, implementation and administration of the program, or the information on the differences in risk-need-responsivity levels of its clients. Future research would benefit from collecting and analyzing this information before reaching conclusions on the effectiveness of treatment in juvenile detention. Although detention is a widely used sanction, there is no clear evidence that it reduces recidivism, even when combined with treatment.

## **Summary**

This study adds to the current pool of knowledge on juvenile detention centers by providing more information on the effect that juvenile detention has on recidivism—an under-researched but widely used sanctioning method for juvenile delinquents. This study examined the effects of prior admissions, length of stay, institutional misconduct, and treatment on recidivism, operationalized as readmissions to the secure unit of the institution within 24 months,

while controlling for age at admission, gender, and race of the delinquents in the sample. The only significant predictor variable in the full model of logistic regression for this dataset was the presence of prior admissions. In accordance with previous research (Cottle, Lee, and Heilbrun, 2001; Holman and Ziedenberg, 2013; Lattimore et al., 2004; Poole and Regoli, 1983; Trulson, 2007; Trulson, DeLisi, and Marquart, 2011), there was a positive and significant relationship between previous and future admissions, indicating that juveniles who have already been admitted to the institution at least once, are more likely to be admitted again. This finding is not supportive of the effectiveness of juvenile detention in recidivism reduction. Although this study did not examine the effectiveness of a juvenile detention center from the labeling paradigm, there is a possibility that prior admissions put a label on the delinquent, making it more likely for them to be re-sent to the institution, instead of being sentenced in the community (McGrath and Weatherburn, 2012). This study also found a significant and negative relationship between age at admission and recidivism, further supporting prior research on the importance of onset age on criminality—the younger the offenders, the longer their criminal paths (Cottle, Lee, and Heilbrun, 2001; Forsyth et al., 2014; Gann, Sullivan, and Ilchi, 2015; MacDonald, 1997; Moffitt, 1993; Willinius et al., 2016). This finding is also supported by research on the age-crime curve and the life-course perspective on crime that posits that juvenile delinquency increases almost tenfold in teenage years and can result in chronic offending (Moffitt, 1993; Scott and Steinberg, 2008; Willinius et al., 2016). Length of stay, the number of institutional misconducts, and attendance of treatment were not significant predictors of recidivism in this study. This might be due to small variation in the sample, classification and management of institutional misconduct within the institution, and/or lack of program integrity, but future research is needed before drawing clear conclusions. All in all, this study did not find unequivocal support

for the usage of juvenile detention in prevention of future crime among juvenile offenders and it encourages examination of other, less invasive and potentially more successful methods of lowering juvenile recidivism.

## REFERENCES

- Adelman, M. and Yalta, C. (2000). Seen But Not Heard: The Legal Lives of Young People. *PoLAR*, 23(2):37-58.
- Andrews, D.A. (2006). *The Principles of Effective Intervention*. In: Latessa, E. and Holsinger, A. (Ed.), *Correctional Contexts: Contemporary and Classical Readings* 3<sup>rd</sup> edition. Los Angeles: Roxbury, P.250-259.
- Andrews, D.A. and Bonta, J. (2010). Rehabilitating criminal justice policy and practice. *Psychology, Public Policy, and Law*, 16(1):39-55.
- Andrews, D.A., Bonta, J., and Hoge, R.D. (1990). Classification for Effective Rehabilitation: Rediscovering Psychology. *Criminal Justice and Behavior*, 17(1):19-52.
- Applegate, B.K., Cullen, F.T., and Fisher, B.S. (1997). Public support for correctional treatment: the continuing appeal of the rehabilitative ideal. *The Prison Journal*, 77(3):237-258.
- Arnett, J.J. (2006). G. Stanley Hall's Adolescence: Brilliance and Nonsense. *History of Psychology*, 9(3):186-197.
- Bickle, G. (2013). An Intermediate Outcome Evaluation of the Thinking for a Change Program. *Ohio: Department of Rehabilitation and Corrections*.
- Bush, J., Glick, B., and Taymans, J. (2011). *Thinking for a Change: Integrated Cognitive Behavior Change Program*. Washington, DC: U.S. Department of Justice, National Institute of Corrections.
- Casiano, H., Katz, L.Y., Globerman, D., and Sareen, J. (2013). Suicide and Deliberate Self-injurious Behavior in Juvenile Correctional Facilities: A Review. *Journal of the Canadian Academy of Child and Adolescent Psychiatry*, 22(2):118-124.
- Cottle, C.C., Lee, R.J., and Heilbrun, K. (2001). The Prediction of Criminal Recidivism in Juveniles: A Meta-Analysis. *Criminal Justice and Behavior*, 28(3):367-394.
- Forsyth, C.J., Asmus, G., Howat, H., Pei, L.K., Forsyth, Y.A., and Stokes, B.R. (2014). Examining the relationship between school suspensions/expulsions and felonies. *Criminal Justice Studies*, 27(2):149-158.
- Gann, S.M., Sullivan, C.J., and Ilchi, O.S. (2015). Elaborating on the Effects of Early Offending: a Study of Factors that Mediate the Impact of Onset Age on Long-Term Trajectories of Criminal Behavior. *Journal of Developmental and Life-Course Criminology*, 1:63-86.
- Gordon, J. A. (2002). Barrett Juvenile Correctional Center: Is it Effective? A Comparison of Youth Released From a Residential Substance Abuse Treatment Center to Youth at a Traditional Juvenile Correctional Center. Final Report.

- Greenwood, P.W. and Turner, S. (1993). Evaluation of the Paint Creek Youth Center: A residential program for serious delinquents. *Criminology*, 31(2):263-279.
- Hall, G.S. (1904). *Adolescence: Its Psychology, and Its Relations to Physiology, Anthropology, Sociology, Sex, Crime, Religion, and Education*. New York: D. Appleton and Company.
- Hannah-Moffat, K. (2005). Criminogenic needs and the transformative risk subject. Hybridization of risk/need in penalty. *Punishment and Society*, 7(1):29-51.
- Harris, P.W., Lockwood, B., Mengers, L., and Stoodley, B.H. (2011). Measuring Recidivism in Juvenile Corrections. *Journal of Juvenile Justice*, 1(1):1-16.
- Heath, S.B. (1999). Rethinking Youth Transitions. Essay Review of Everyday Courage: The Lives and Stories of Urban Teenagers by Niobe Way. *Human Development*. 42:376-382.
- Heynen, E.J.E., van der Helm, G.H.P., Wissink, I.B., Stams, G.J.J.M., and Moonen, X.M.H. (2015). "I Don't Care About What You Want!" The Relation Between Juvenile Delinquents' Responses to Social Problem Situations and Empathy in Secure Juvenile Institutions. *Journal of Interpersonal Violence*, P:1-15.
- Holman, B. and Ziedenberg, J. (2013). The Dangers of Detention: The Impact of Incarcerating Youth in Detention and Other Secure Facilities. *A Justice Policy Institute Report*, retrieved from: [http://www.justicepolicy.org/images/upload/06-11\\_rep\\_dangersofdetention\\_jj.pdf](http://www.justicepolicy.org/images/upload/06-11_rep_dangersofdetention_jj.pdf)
- Inderbitzin, M. (2006). Guardians of the State's Problem Children: An Ethnographic Study of Staff Members in a Juvenile Correctional Facility. *The Prison Journal*, 86(4):431-451.
- Irwin, J. and Cressey, D. (1962). Thieves, convicts, and the inmate culture. *Social Problems*, 10:142-155.
- Landenberger, N.A. and Lipsey, M.W. (2005). The positive effects of cognitive-behavioral programs for offenders: A meta-analysis of factors associated with effective treatment. *Journal of Experimental Criminology*, 1:451-476.
- Latessa, E.J., Cullen, F.T., and Gendreau, P. (2002). Beyond Correctional Quackery- Professionalism and the Possibility of Effective Treatment. *Federal Probation*, 66(2):43-49.
- Lattimore, P.K., MacDonald, J.M., Piquero, A.R., Linster, R.L., and 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.
- Leone, P.E. and Wruble, P.C. (2015). Education Services in Juvenile Corrections: 40 Years of Litigation and Reform. *Education and Treatment of Children*, 38(4):587-604.
- Lipsey, M.W. (2009). The Primary Factors that Characterize Effective Interventions with Juvenile Offenders: A Meta-Analytic Overview. *Victims and Offenders*, 4:124-147.

- Lipsey, M.W., Chapman, G.L., and Landenberger, N.A. (2001). Cognitive-Behavioral Programs for Offenders. *Annals of the American Academy of Political and Social Science*, Vol.578, What Works in Preventing Crime? Systematic Reviews of Experimental and Quasi-Experimental Research (Nov., 2001):144-157.
- Lipsey, M.W., Wilson, D.B., and Cothorn, L. (2000). Effective Intervention for Serious Juvenile Offenders. *U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention - Bulletin*. Retrieved from: <https://www.ncjrs.gov/pdffiles1/ojjdp/181201.pdf>
- Loughran, T.A., Mulvey, E.P., Schubert, C.A., Fagan, J., Piquero, A.R., and Losoya, S.H. (2009). Estimating a dose-response relationship between length of stay and future recidivism in serious juvenile offenders. *Criminology*, 47(3):699-740.
- MacDonald, J.M. (1997). Institutional Responses to Misconduct in Juvenile Prisons. *Criminal Justice Policy Review*, 8(2-3):247-268.
- MacKenzie, D.L. (2000). Evidence-Based Corrections: Identifying What Works. *Crime and Delinquency*, 46(4):457-471.
- McGrath, A. and Weatherburn, D. (2012). The effect of custodial penalties on juvenile reoffending. *Australian & New Zealand Journal of Criminology*, 45(1):26-44.
- Moffitt, T.E. (1993). Adolescence-Limited and Life-Course-Persistent Antisocial Behavior: A Developmental Taxonomy. *Psychological Review*, 100(4):674-701.
- Moon, M.M., Sundt, J.L., Cullen, F.T., Wright, J.P. (2000). Is Child Saving Dead? Public Support for Juvenile Rehabilitation. *Crime & Delinquency*, 46(1):38-60.
- Myers, R.R. (2012). "Society Must be Protected from the Child": The Construction of US Juvenile Detention as Necessary and Normal. *Critical Criminology*, 20:395-407.
- Pavićević, O. (2014) Youth as an at-risk group. *Kriminologija i socijalna integracija*. 22(2):77-101.
- Pearson, F.S., Lipton, D.S., Cleland, C.M., and Yee, D.S. (2002). The Effects of Behavioral/Cognitive-Behavioral Programs on Recidivism. *Crime and Delinquency*, 48(3):476-496.
- Pomeroy, R.P. (2008). Punk Rockers. *City & Society*. 1(1):80-89.
- Poole, E.D. and Regoli, R.M. (1983). Violence in Juvenile Institutions. *Criminology*, 21(2):213-232.
- Scott, E.S. and Steinberg, L. (2008). *Rethinking juvenile justice*. Cambridge, Massachusetts: Harvard University Press.

- Skilling, T.A. and Sorge, G.B. (2014). Measuring antisocial values and attitudes in justice-involved male youth: Evaluating the Psychometric Properties of the Pride in Delinquency Scale and the Criminal Sentiments Scale-Modified. *Criminal Justice and Behavior*, 41(8):992-1007.
- Smith, P. and Gendreau, P. (2008). A longitudinal examination of inmate behavior and program activities on institutional adjustment and recidivism.
- Smith, P., Gendreau, P., and Swartz, K. (2009). Validating the Principles of Effective Intervention: A Systematic Review of the Contributions of Meta-Analysis in the Field of Corrections. *Victims and Offenders*, 4:148-169.
- Steinhart, D.J. (1996). Status Offenses. *The Future of Children*, 6(3), The Juvenile Court (Winter 1996):86-99.
- Sykes, G. (1958). *The society of captives: A study of maximum security prison*. Princeton, NJ: Princeton University Press.
- Tarolla, S.M., Wagner, E.F., Rabinowitz, J., and Tubman, J.G. (2002). Understanding and treating juvenile offenders: A review of current knowledge and future directions. *Aggression and Violent Behavior*, 7:125-143.
- The Annie E. Casey Foundation (2013). *Reducing Youth Incarceration in the United States*. Baltimore, MD. Retrieved from: <http://www.aecf.org/resources/reducing-youth-incarceration-in-the-united-states>
- Thornton, S. (1995). The social logic of subcultural capital. In: Gelder, K. and Thornton, S. (Ed.), *The subcultures reader*. New York: Routledge, P.200-209.
- Trulson, C.R. (2007). Determinants of Disruption: Institutional Misconduct Among State-Committed Delinquents. *Youth Violence and Juvenile Justice*, 5(1):7-34.
- Trulson, C.R., DeLisi, M., and Marquart, J.W. (2011). Institutional Misconduct, Delinquent Background, and Rearrest Frequency Among Serious and Violent Delinquent Offenders. *Crime and Delinquency*, 57(5):709-731.
- Trulson, C.R., Marquart, J.W., Mullings, J.L., and 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.
- U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention. (2015). *OJJPD Statistical Briefing Book*, available at: <https://www.ojjdp.gov/ojstatBB/corrections/qa08301.asp?qaDate=2013&text=no&maplink=link1>
- U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention. (2016). *OJJPD Statistical Briefing Book*, available at: <https://www.ojjdp.gov/ojstatBB/corrections/qa08201.asp?qaDate=2014>.

- Walker, C.S. and Bishop, A.S. (2016). Length of stay, therapeutic change, and recidivism for incarcerated juvenile offenders. *Journal of Offender Rehabilitation*, 55(6):355-376.
- Willinius, M., Delfin, C., Billstedt, E., Nilsson, T., Anckarsäter, H., and Hofvander, B. (2016). Offenders in Emerging Adulthood: School Maladjustment, Childhood Adversities, and Prediction of Aggressive Antisocial Behaviors. *Law and Human Behavior*, 40(5):551-563.
- Wilson, D.B, Bouffard, L.A., and MacKenzie, D.L. (2005). A quantitative review of structured, group-oriented, cognitive-behavioral programs for offenders. *Criminal Justice and Behavior*, 32(2):172-204.
- Winokur, K.P., Smith, A., Bontrager, S.R., and Blankenship, J.L. (2008). Juvenile recidivism and length of stay. *Journal of Criminal Justice*, 36:126-137.
- Wooldredge, J.D. (1988). Differentiating the effects of juvenile court sentences on eliminating recidivism. *Journal of Research in Crime and Delinquency*, 25(3):264-300.



## APPENDIX. VARIANCE INFLATION FACTOR COLLINEARITY DIAGNOSTICS

VIF in the Full Binary Logistic Regression Model (n=512)

Variable	Model 6			
	B	Sig.	Exp(B)	VIF
Gender (0=female)	0.35	0.13	1.41	1.02
Race (0=White)		0.68		
<i>American Indian/Alaskan Native</i>	0.03	0.90	1.03	1.05
<i>African American</i>	0.32	0.32	1.37	1.06
<i>Other</i>	0.37	0.43	1.44	1.03
Age at admission (years)	-0.20**	0.00	0.82	1.07
Prior admissions (0=no)	0.99**	0.00	2.69	1.07
Length of stay (days)	-0.00	0.36	1.00	2.56
DRTs (continuous)	-0.05	0.36	0.95	1.36
Treatment (0=no)	0.74	0.21	2.10	2.14
Constant	2.32*	0.01	10.22	

$X^2=39.22^{**}$   
Nagelkerke  $r^2=0.10$

\* $p<0.05$ , \*\* $p<0.01$