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# Understanding the Effectiveness of Incarceration on Juvenile Offending through a Systematic Review and Meta-Analysis: Do the "Get Tough" Policies Work?

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**Nova Southeastern University**  
**Institute for the Study of Human Service, Health, and Justice**

Understanding the Effectiveness of Incarceration on Juvenile Offending through A  
Systematic Review and Meta-Analysis: Do the “Get Tough” Policies work?

by

Jacqueline Anita Benes Black

A Dissertation Presented to the  
Institute for the Study of Human Service, Health, and Justice  
of Nova Southeastern University  
in Partial Fulfillment of the Requirements for the Degree of  
**Doctor of Philosophy**

2016

Keywords: systematic review, meta-analysis, recidivism, juvenile, offending, prison,  
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Nova Southeastern University (NSU)  
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## Dedication

I would like to dedicate this dissertation to my entire family who have endured and willingly accepted my absence. To my husband, Mark, I love you and without your support, trust, and encouragement this project or this degree would have never happened. To my daughter, Amanda, who constantly reminds me of the importance of life. I also want to dedicate this to my granddaughter, my Emmeline, (and to her parents, my son Wes and Mary Ann, who without them she would not be here). Emme, I dedicate this to the sweet darling, person you are and the person you will become.

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## Abstract

### Understanding the Effectiveness of Incarceration on Juvenile Offending through A Systematic Review and Meta-Analysis: Do the “Get Tough” Policies work?

by

Jacqueline Anita Benes Black

2016

The juvenile system is no longer perceived as a social welfare model, but has become more punitive approximating a crime control model. Juveniles are not responsible for the majority of crime in the United States and are not the most serious and violent demographic; however, they are incarcerated at a higher rate than adults. Incarceration is an element of deterrence currently used by the juvenile justice system without a clear conclusion of whether or not it works to reduce juvenile crime.

The goal of this research was to first conduct a systematic review of prior studies on the effectiveness of incarceration on recidivism rates for juvenile offenders. A meta-analysis design was used on selected studies that met the inclusion criteria to determine if a relationship exists. This study compared and reviewed the recidivism rates of juvenile offenders sentenced to incarceration with a comparison group as identified in each study. The method for statistical measurement to test the research questions focused on analyzing effect sizes with a mean effect size through a meta-analysis. Moderators were analyzed across groups on their effect on recidivism. The length of the sentences for juveniles were examined and the results showed an association between longer sentences and reduced recidivism. Additionally, the effect sizes comparing recidivism between



incarceration with non-incarceration resulted in negative relationship. Incarcerating juveniles is not a deterrent for criminal behavior, rather incarceration increased recidivism. It is time for policy makers to adhere to the evidence that incarceration does not deter crime and accept that imprisoning juveniles does not fulfill the promises of reducing crime and increasing public safety.

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## CHAPTER 1: INTRODUCTION

### **Background of the Problem**

The juvenile justice system is under constant attack by the media, the public, legislators, courts, and criminal justice professionals (Allard & Young, 2002; Krisberg & Howell, 1999; Ryon, Early, Hand & Chapman, 2013). As an educator and a criminologist, this researcher is involved in active discussions and debates on whether or not the juvenile justice system should be merged with the criminal court, split into multiple courts or dissolved altogether. The original philosophical goal of a separate justice system for juveniles was based on a social welfare model that was multifold as a means of intervention, accountability and rehabilitation (Mears, Cochran, Greenman, Bhati, & Greenwald, 2011; National Center for Juvenile Justice, 2014), yet in the last few years, the juvenile system has become more punitive approximating a crime control model, no longer perceived as a social welfare model. This change has occurred even though according to prior studies, juveniles are not responsible for the majority of crime in the United States and are not the most serious and violent demographic (Mauer & Epstein, 2012; Puzzanchera, Adams, & Hockenberry, 2012; Sickmund & Puzzanchera, 2014). The rate of juvenile homicide is one of the lowest of all juvenile crimes (arrests down 23% in 2010 from 2007), but there is still a misconception among the media, the public, and even officials that juvenile crime is on the rise (FBI's *Uniform Crime Report*, 2014; Jordan & Myers, 2011; Mauer & Epstein, 2012; Sickmund & Puzzanchera, 2014).

**Collecting Data on Juvenile Crime.** The Office of Juvenile Justice and Delinquency Prevention (OJJDP) has the sole responsibility among all federal agencies to



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“develop and disseminate knowledge about what works to prevent juvenile delinquency and violence to improve the effectiveness of the juvenile justice system” (Coordinating Council Report, 2008, p. 3). Even though the number of juveniles arrested each year has declined, the number adjudicated delinquent has risen from 1.1 million in 1985 to 1.4 million in 2010 (Hockenberry & Puzzanchera, 2014). The courts processed 49.3 delinquency cases for every 1,000 juveniles in the population (Puzzanchera et al., 2012). The OJJDP requires accurate data and research to develop their goals that will improve results for at risk and justice involved youth whether that is building more prisons or allocating funds to more non-incarcerated sanctions (Coordinating Council Report, 2008; Puzzanchera et al., 2012). In the 1980s and early 1990s, there was a trend toward more punitive sanctions that appeared logical due to a sharp increase in crime but that rate took a downward turn. “Hence, young criminals today are being punished for the behavior of their counterparts who committed serious offenses 15 to 20 years ago” (Urbina, 2005, p. 150).

Research “showed that the number of juveniles convicted of murder actually declined 57% between 1990 and 2000...[;however,]... the number of juveniles receiving life without parole sentences increased by 216%” (Brendtro & Mitchell, 2007, p. 25). Table 1 shows juvenile crimes that were handled by the juvenile justice system from 1985 until 2012 to include the total number of juveniles arrested, the total number of delinquency cases handled by the juvenile court, the total number of violent cases, the total number of petitioned cases and the total percentages for violent and petitioned cases of the total number of delinquency cases processed.

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Table 1

*Juvenile Crimes Handled by the Juvenile Justice System, 1985-2012*

| Year  | Total Arrested | Delinquency Cases Processed | Court Processed for Violent Crime (% of delinquency processed) | Total Petitioned (% of delinquency cases processed) |
|-------|----------------|-----------------------------|--|---|
| 2012  | 1,319,700      | 1,145,800                   | 58,000 (5.1)   | 619,700(54)   |
| 2011  | 1,470,000      | 1,239,400                   | 63,100(5.1)  | 666,200(54)   |
| 2010  | 1,642,600      | 1,355,500                   | 70,300(5.2)  | 723,600(53)   |
| 2009  | 1,906,600      | 1,480,200                   | 77,100(5.2)  | 802,000(54)   |
| 2008  | 2,101,100      | 1,607,900                   | 86,200(5.4)  | 882,600(55)   |
| 2007  | 2,171,200      | 1,628,600                   | 87,300(5.4)  | 902,400(55)   |
| 2006  | 2,213,500      | 1,627,000                   | 87,100(5.4)  | 903,500(56)   |
| 2005  | 2,148,900      | 1,677,100                   | 85,600(5.1)  | 920,300(55)   |
| 2004  | 2,184,000      | 1,669,100                   | 77,100(4.6)  | 920,300(55)   |
| 2003  | 2,208,900      | 1,673,600                   | 76,500(4.6)  | 945,200(56)   |
| 2002  | 2,250,100      | 1,669,600                   | 75,200(4.5)  | 946,400(57)   |
| 2001  | 2,224,300      | 1,679,700                   | 78,100(4.6)  | 948,500(56)   |
| 2000  | 2,300,400      | 1,703,500                   | 79,800(4.7)  | 968,000(57)   |
| 1999  | 2,360,400      | 1,732,700                   | 88,200(5.0)  | 992,900(57)   |
| 1998  | 2,561,100      | 1,800,200                   | 98,600(5.6)  | 1,031,900(57)                                       |
| 1997  | 2,829,800      | 1,874,600                   | 104,700(5.6)   | 1,051,300(56)                                       |
| 1996  | 2,863,800      | 1,869,700                   | 107,800(5.8)   | 1,027,800(55)                                       |
| 1995* | 2,795,000      | 1,825,900                   | 112,800(6.2)   | 976,700(53)   |
| 1990  | **             | 1,321,300                   | 765,000(5.8)   | 661,600(50)   |
| 1985  | **             | 1,159,400                   | 601,000(5.2)   | 531,100(46)   |

\*Increased to 5 years for space allocations, \*\* Not available through FBI statistics

As shown in Table 1, the number of delinquency cases processed decreased from 1,825,900 in 1995 to 1,145,800 in 2012, a decline of over 37%; however, the percentage of those totals for the total juveniles petitioned from that time frame remained between 53% and 57%.

**The Goal Behind Creating a Separate Juvenile Justice System.** The advocates of the original juvenile justice system supported the philosophy that the purpose of the juvenile justice system is to “control and rehabilitate juvenile offenders” (Roberts, 2004, p. 37) because juveniles are different than adults and are “less culpable for their actions” (Mauer & Epstein, 2012, p. 36). According to Sickmund and Puzanchera (2014), this philosophy remains the focus of the United States juvenile justice system. The first juvenile court was established in Cook County, Illinois in 1899 and was originally designed to be a *parens patriae*, to protect the child in place of parents who either could not offer appropriate guidance or who were unwilling. Before the emergence of a separate juvenile court in 1899, delinquent youth were imprisoned with adult offenders without the same rights but with many of the same penal outcomes as adults (Roberts, 2004).

Harsher penalties and transfer to adult court are the justice system’s current responses to the violent and most serious of youth. The purpose of the juvenile justice system began as a multifold means of intervention, accountability and social welfare response and, according to current research, reducing recidivism remains a main goal, whether it is a result of incarceration or not (Grunwald, Lockwood, Harris & Mennis, 2010; Lipsey, 2009; Mears et al., 2011; Schubert et al., 2010). Policy makers, law

enforcement, and court officials need current information on the outcomes that reduce recidivism in order to make informed decisions.

### **The Nature and Significance of the Problem**

The juvenile arrest rate has declined, specifically juvenile violent crime, by 14% between 2001 and 2011, but harsher penalties continue to be utilized for all juvenile criminal behavior including status offenses (Mauer & Epstein, 2012). Research indicates that harsher sanctions, especially incarceration, are harmful to juveniles, increase criminal behavior, and do not reduce juvenile crime (Mallet, 2009; Mulvey, 2011). Practitioners in the juvenile justice system should want to reduce the juvenile crime rate, especially violent crime, but it is not good news if the arrest rate declines because of an increase in incarceration; even worse because of an increase in incarceration for juveniles in adult prisons. The United States remains the country with the highest incarceration rate with juveniles being incarcerated at a faster rate than adults (Pew Center on the States 2009; Sickmund & Puzzanchera, 2014); however, the United States does not collect or compare the national recidivism rate for juveniles. Recidivism rates on juvenile criminal behavior must be acquired through individual studies, meta-analyses, and replication. Incarceration should not be utilized as a sanction for juveniles especially increasing its use if there is no evidence that it reduces recidivism.

**Problem Statement.** Since the 19<sup>th</sup> century, whether or not juvenile confinement and incarceration increased or decreased juvenile criminal behavior has been the center of much debate in the media and in the administration of the justice system of the United States (Allard & Young, 2002; Brendtro, & Mitchell, 2007). The sanctions labeled incarceration are elements of deterrence currently used by the juvenile justice system

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without a clear conclusion of whether or not they work to reduce juvenile crime. Clear evidence on the effectiveness of incarceration on juvenile recidivism is needed in order to determine if “get tough” policies work.

**Get Tough on Crime.** The United States, with the help of the media, has changed the focus of the juvenile justice system from rehabilitation to more “get tough” on crime sentences that punish through restricted confinement. As a result of this “get tough” era, the policies that focus on the rehabilitation and treatment of juvenile offenders have been replaced with a more punitive model concentrating on control and surveillance (Jordan & Myers, 2011). Historical research prior to 2009 supports this crime control model indicating a rise in the severity of sanctions for juveniles including extended incarceration sentences and an increase in the number of juveniles waived to adult court (Adams & Addie, 2011; Fagan, 2010; Jordan & Myers, 2011). The number of juvenile delinquency cases processed in juvenile court increased 205% from 1960 through 2011, but did begin decreasing in 1996; there was a decrease of 34% from 1996 to 2011 (Hockenberry & Puzzanchera, 2014).

The knowledge of whether or not incarceration is a deterrent for juvenile behavior gives policy makers, law enforcement, and court officials the power to restructure the juvenile justice system in order to maintain public safety and protect juveniles according to the original philosophy of *parens patriae*. Justice Kagan wrote for the majority in the decision of *Miller v Alabama*, (Miller v. Alabama 132 S. Ct. 2455 2012) that the justice system needs to protect the time of adolescence that embodies “immaturity, impetuosity and failure to appreciate risks and consequences,” (Supreme Court of the United States, 2011, p. 15).

**Prior Studies.** There are numerous studies available that discuss multiple sanctions for juveniles that include incarceration (e.g.: Krisberg, Farington & Welsh; Lipsey & Cullen; Lipsey, Howell, Kelly, Chapman & Carver; Mackenzie & Freeland; Mears et al., 2011), but very few available within the last 15 years that study the specific relationship between incarceration and recidivism of juveniles (Cauffman et al., 2007; Espinosa, Belshaw & Osho, 2008). Additionally, current studies suggest the need for more research, due to the existence of only a few credible studies and the lack of any meta-analysis conducted on recidivism rates and incarceration (eg: Loughran et al., 2009; MacKenzie & Freeland, 2011; Mears et al., 2011; Nagin et al., 2009). However, there are other studies that used a systematic review combined with a meta-analysis to research the effectiveness of different diversion programs and different programming within placements on reducing recidivism (e.g. Lipsey, 2009; Schwalbe, Gearing, MacKenzie, Brewer, & Ibrahim, 2012). Unfortunately, there are a limited number of experimental studies comparing recidivism between incarceration and other less restrictive sanctions.

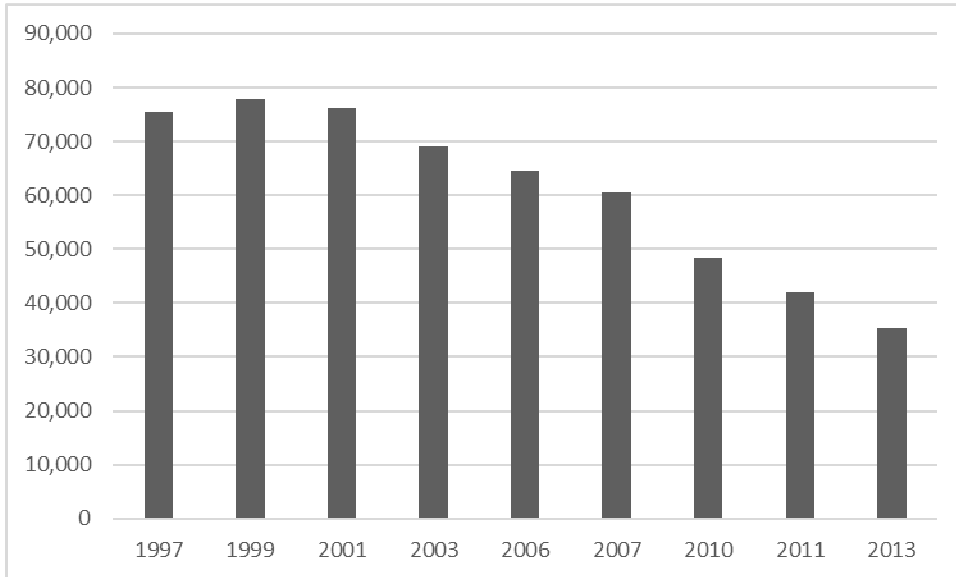
According to Walker (2011), policy must be based on multiple studies instead of one, and a meta-analysis is even more effective. Prior studies have reported on specific types of programs or offered an in-depth analysis on an individual program's impact on juvenile offending that has been beneficial to criminal justice practitioners, law enforcement, and policy makers; however, there is limited research that specifically focuses on the relationship between recidivism and incarceration for juvenile offenders.

The National Center for Juvenile Justice prepares a comprehensive report of combined data on juvenile crime every 5 years (4 in the last 20 years) and uses research compiled from multiple sources (Sickmund, & Puzzanchera, 2014). Evidenced-based guidelines are the new framework for juvenile justice sanctions and programs, and peer-

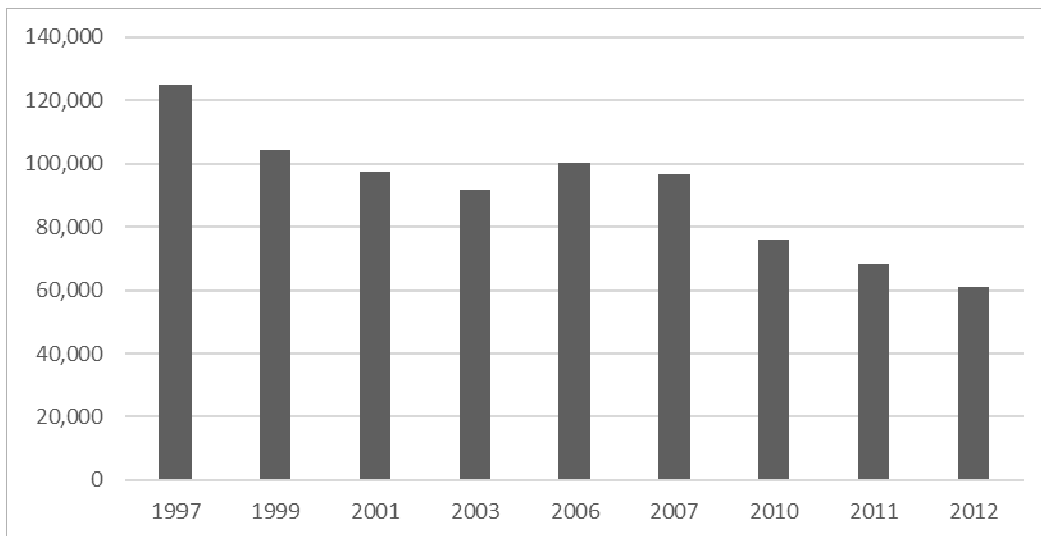
reviewed, empirically based research is needed on the successes and failures within the system especially incarceration. According to Young, Farrell, and Taxman (2013) evidenced-based sanctions and outcomes have increased in advancement and identified more ways to increase successes, but, sadly, reviews including community corrections have been omitted.

**The Current Gap in Research.** The juvenile population historically has not been served to the full potential of the criminal justice system and prior research shows that recidivism rates for delinquent juveniles' significantly decrease when sentencing outcomes are less punitive and more rehabilitative (Mallet, 2009). Prior research reveals that incarceration or confinement is not the most productive court outcome for delinquent juveniles, even those labeled most serious (Mulvey, 2011). Practitioners and policy makers need to have the knowledge whether or not the "get tough" policies enacted to deter juvenile violence were successful at their intended outcome: reducing serious juvenile behavior. A number of renowned researchers and criminologists agree that the crime rate has dropped since the 1990s, but they do not agree on what worked to cause the decrease (Andrews et al., 1990; Blumstein & Wallman, 2000; Hjalmarsson, 2009; Kowalski & Caputo, 1999; Kurlycheck & Johnson, 2004; Ryan, Abrams, & Huang (2014). The number of juveniles committed to juvenile facilities (Figure 1) has decreased over the last 15 years, and the rate of juvenile crime (Figure 2) has also decreased. Whether the two are statistically related has not been empirically researched.

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*Figure 1: Number of Youth Committed to Juvenile Facilities, 1997-2013 Adapted from The Sentencing Project by Sickmund, M., Sladky, T.J., Kang, W., and Puzzanchera, C. (2015). Easy access to the census of juveniles in residential placement. Retrieved from: <http://www.ojjdp.gov/ojstatbb/ezacjrp/>*



*Figure 2. Number of Youth Arrested for Violent Crimes, 1997-2012. Adapted from Easy access to FBI Arrest Statistics 1994-2012 by Puzzanchera, C. and Kang, W. 2014. Retrieved from: <http://www.ojjdp.gov/ojstatbb/ezaucr/>*



## JUVENILE RECIDIVISM AND INCARCERATION

New studies and research surface frequently contributing to an abundance of information towards preventing and lowering juvenile criminal behavior and require researching a number of sites and many different sources. The results from this study can benefit legislators, policy-makers, court officials, and juvenile justice officials in identifying these gaps in juvenile sentencing in order to reduce juvenile recidivism rates. The OJJDP is tasked with the responsibility of examining the “breadth of federal research, funding, programs and policy” (“Coordinating Council”, 2008, p. 3) and these results can assist in that mission. According to Mears et al. (2011), scholars have responded to the need for peer-reviewed, empirical research by providing numerous studies, research, reviews, and even meta-analyses on the effectiveness of court sanctions, but none they referenced studied the specific relationship between incarceration and recidivism of juvenile offenders using the meta-analysis method. Potentially, the external validity of such a study can heighten the already distinguished field of research surrounding juvenile offending and recidivism.

A meta-analysis “cumulates the results of multiple studies” (Bachman & Schutt, 2014, p. 363) and is more beneficial to practitioners than single studies. Single studies on the same research question can result in support of a hypothesis another may fail to support. In addition, “single studies are limited in time, location, and measurement” (Bachman & Schutt, 2014, p. 363) which accordingly limits the conclusions. Prior research and collected data support that juvenile crime and violent crime are decreasing. Thus, instead of increasing sentences, punishment, and transferring youth to adult prisons, criminal justice professionals, law enforcement officers, and policy makers need more accurate results on the effectiveness of confinement to make educated decisions that

will result in lower crime rates and more successful young adults (FBI's *Uniform Crime Report*, 1995 to 2003; Puzzanchera et al., 2012; Sickmund, & Puzzanchera, 2014).

There are very few academic studies found as a result of extensive searches on available search engines, data bases, and academic resources that utilize a systematic review as the main goal of the research for a dissertation. It is especially rare in the criminal justice field as most systematic reviews found were conducted in the medical field. Moreover, after conducting a search of the databases at Nova Southeastern University, Alvin Sherman Library, for the keywords "systematic review" in the keyword field, 1,092 results were returned; in the title field, 166 results were returned. The majority of these were in the medical field. When the search was more focused and included juveni\* and recidivi\* in the abstract, the results indicated one dissertation. It is more common among research in criminal justice to begin with a systematic review and conclude with meta-analyses for the statistical testing.

An intensive, rigorous methodology is needed in the field of criminal justice, more specifically juvenile justice, on the current research to determine the quality of studies and outcomes that are used by professionals to make decisions impacting the future of juvenile justice. A systematic review and meta-analysis completed on studies showing whether or not incarceration is successful at reducing future juvenile offending can only help to determine if the decision to abandon rehabilitation and move towards "get tough" policies is working as anticipated.

### **Dissertation Goal**

The goal of this research was to conduct a systematic review and meta-analysis of prior studies on the effectiveness of incarceration on recidivism rates for serious juvenile

offenders on whether or not a relationship exists. There are meta-analysis studies available on the effectiveness of different diversions for juveniles and others that include a broad range of behaviors from status offenses to delinquent offenses as well as a broad range of programs. No studies were located on systematic reviews and meta-analyses focused exclusively on incarceration. There have been improvements in the juvenile justice system such as restorative justice and the Supreme Court ruling prohibiting life in prison sentences for juveniles but there are still many improvements needed to reduce juvenile crime in society. According to Sickmund and Puzzanchera (2014) “accurate information about the system and the youth the system serves...must be easily accessible to... “juvenile justice practitioners, policy-makers, and the public” (p. iii) and this dissertation bridges the gap among multiple sources and coalescing into one comprehensive report. The National Center for Juvenile Justice compiles the most requested data and current research on juvenile crime to prevent the scattering of information and this study expands on those sources (Sickmund & Puzzanchera, 2014).

With the broad range of information and studies available on juvenile crime, a study must exhaust research on specific outcomes to be effective and relevant to current issues. Additionally, since the steady decline in the juvenile violent index rate, empirical research using a systematic review and meta-analysis focused on juvenile behaviors does not exist. This study provided a clear understanding of the relationship between incarceration and juvenile offending to help legislatures, policy makes, law enforcement and criminal justice professionals increase public safety by reducing juvenile crime. The juvenile justice system and the criminal justice system need to put redirection before punishment, and age appropriate sanctions need to be put before tough adult-like

sanctions in order to solicit the needed change in a positive direction for the justice system.

### **Barriers and Issues**

As Mauer and Epstein (2012) reported, an exorbitant amount of revenue has been spent on multiple programs across the country with some reporting positive outcomes while others report ineffective outcomes. The juvenile justice system needs to re-evaluate the punishment of confinement as a way to deter future behavior and evaluate accurate research to make educated decisions that impact juveniles.

The number of databases available for searching articles and studies on juvenile offending is overwhelming with many journals available in different databases as well as many available in only one database. Conducting a search in a database lead to an overpowering number of articles that were irrelevant to the needs of this study. There were also a number of ways to search for articles that included adding quotation marks, asterisks, etc. to centralize the research goal. Important studies on programs could have been overlooked due to the process of searching and locating articles for review. Unpublished studies could inadvertently have been excluded due to the lack of availability. In addition, many articles were reviewed for this study that were eliminated for various reasons causing a lengthy search time. The full article was not always available in databases and had to be ordered, increasing the overall time of preparation and article identification.

### **Limitations and Delimitations**

The purpose of this research was to explore whether or not there was a relationship between recidivism and incarceration for juvenile offenders through a systematic review and analysis of effect sizes on prior studies. It was mandatory that studies included in this study were reliable in their data reporting and used evidenced-based practices in the outcomes. Since this study was 90% review of previous studies, the majority of the work was contacting experts and researchers, accessing search engines, research sources, local academic libraries, government websites, academic journals, and any other sources found to be relevant to the research. A literature search was completed using Academic One-File, ProQuest, Sage Online, PsycINFO, National Criminal Justice Reference Service, Bureau of Justice Statistics, Office of Justice Program, Office of Juvenile Justice and Delinquency Prevention, and other peer-reviewed and scholarly resources to locate eligible studies. Because this researcher only reads and comprehends the English language, all studies were limited to that dialect. Conclusions, recommendations, and limitations about a relationship between incarceration and juvenile offending were drawn from the studies in this research, and inaccurate, invalid, and unreliable research would have dramatically impacted the results of those recommendations.

This researcher was required by the mere origin of the material used in determining merit of a program or outcome to adhere to a caution in validity and reliability identified by Huck (2013) that both reliability and validity reported in any study "...[are] really characteristic[s] of the data produced by a measuring instrument and not a characteristic of the measuring instrument itself" (p. 86). A major delimitation that

faced this research was the lack of studies comparing incarceration with other outcomes on juvenile recidivism and, therefore, negatively impacted the collection of studies for the systematic review and the calculation of effect sizes. In addition, because of the number of studies completed on juvenile justice, it was possible to miss relevant studies due to keywords used in the search as well as possible to include irrelevant studies.

### **Definition of Terms**

**Systematic Review:** “[S]um[s] up the best available research on a specific question...by synthesizing the results of several studies... [and]...uses transparent procedures to find, evaluate and synthesize the results of relevant research” (Campbell Collaboration, n.d., para 1).

**Meta-Analysis:** “[A] quantitative method for identifying patterns in findings across multiple studies of the same research question” (Cooper & Hedges as cited in Bachman & Schutt, 2014, p. 360).

**Recidivism:** “Rearrest, readjudication or conviction, and recommitment to a juvenile or adult corrections facility” (The Pew Charitable Trust, 2015, para. 3).

**Juvenile Delinquency:** “A term used to describe the wrong doing of youths and children” (“Juvenile Delinquency,” n.d.).

**Violent Index Crimes:** “Murder and nonnegligent manslaughter, forcible rape, robbery, and aggravated assault” (Office of Justice Programs, 2014, para. 1)

**Confinement:** “Secure confinement refers to youth who have been adjudicated delinquent and are committed to the custody of correctional facilities for periods generally ranging from a few months to several years. [They]... have a much broader array of programs than detention facilities.” (Austin, Johnson, & Weitzer, 2005, p. 1).

**Secure detention:** “Secure detention refers to the holding of youth, upon arrest, in a juvenile detention facility (e.g., juvenile hall) for two main purposes: to ensure the youth appears for all court hearings and to protect the community from future offending” (Austin et al., 2005, p. 1). This “differs from secure confinement both in terms of the reasons a youth is being held and in the range and intensity of programs available to an offender in each setting” (Austin et al., 2005, p. 1).

**Incarceration:** Juvenile incarceration refers to any institutional correction facility used by the justice system to include public and private facilities, postadjudicatory institutions, secure facilities, residential facilities and “represent the most restrictive option available to juvenile courts” (Elrod & Ryder, 2014, p. 317).

**Juvenile Boot Camp:** “a short term program that resembles basic military training by emphasizing physical training and discipline; boot camps often include educational and rehabilitative components” (Whitehead & Lab, 2015, p. 478). Boot camps are used for public safety and to punish the offender by holding them accountable while deterring crime as well to reduce prison overcrowding, reduce costs and rehabilitate (Whitehead & Lab, 2015).

**Residential Placement:** Includes both secure and non-secure facilities that house juvenile offenders, under the age of 21 as a result of some contact with the justice system for both status and delinquent offenses, (either charged with or adjudicated with an offense) (Hockenberry, 2013).

### **Summary**

Chapter one discussed the significance of completing this study along with the problem statement to build the background for conducting research on the relationship between incarceration and juvenile offending. As indicated, there is a lack of research on

the relationship between incarceration and juvenile recidivism especially utilizing a systematic review and meta-analysis approach. The data included in this section shows a decrease in juvenile offending, but an increase in punishment. Also included is information on “get tough” policies in reaction to juvenile crime, the contribution of prior studies, data collection on juvenile crime and the goal behind creating a separate juvenile justice system. It is imperative that data continue to be collected and analyzed on juvenile offending and that the data collected be accurate and representative of the problem the juvenile justice system is facing. The next section included the dissertation goal and the projected rationale behind conducting this research. There is an obvious gap in criminal justice research and one goal of this study was to fill that gap. The next area included any barriers and issues of the research, limitations and delimitations, and the definition of terms that were used in the study.

### **Organization of the Dissertation**

The literature review from studies on recidivism rates for juvenile offenders following incarceration, “get tough” policies, the impact of waivers on juvenile reoffending, and blending sentencing as a reaction to serious juvenile offending are found in Chapter 2. The review also includes meta-analyses that were conducted on juvenile offending and studies focused on any differences in gender and recidivism. Also found in Chapter 2 are the contextual factors that impact the relationship between incarceration and serious juvenile offending. Chapter 2 ends with a summary of all the research as well as an introduction to Chapter 3. Chapter 3 includes the methodology used for the research, the research design utilizing a meta-analysis approach, and the research questions. Also included in Chapter 3 are the population, sample, variables, and the



statistical measure for analyzing the studies for the research followed up with any identified threats to validity. Chapter 4 includes the results of the statistical measures described in Chapter 3 with figures and tables of data. Finally, Chapter 5 includes a discussion comparing the prior research with the current outcomes, conclusions, limitations, and policy implications of the completed study as well as recommendations for future research.

## CHAPTER 2: REVIEW OF LITERATURE

### Introduction

This chapter includes a review of prior research, both single studies and meta-analyses, on the effectiveness of sanctions at preventing juvenile offending and the effectiveness of the “get tough” policies of the United States legislature. Both a qualitative and a quantitative approach were used to assess existing literature on juvenile confinement, the former through a systematic review and the latter through data analysis. The following evaluation demonstrates a relationship between offending and confinement for serious juvenile offenders through the systematic review of previous empirically based research. This review addresses the research questions of whether or not offending rates are impacted by the “get tough” policies of the judicial system, if juvenile incarceration is an effective deterrent to future offending, and whether sentence length affects recidivism following placement. This chapter identifies any connection by performing the review of over 35 studies from peer-reviewed journal articles, government generated reports, dissertations, and bulletins on the relationship between juvenile incarceration and offending, consequently, the effectiveness of the “get tough” policies. The results of this review show the need for continued research in the method of a systematic review and meta-analysis of experimental research.

### **Inclusion of Studies for the Literature Review**

In order to begin this literature review, an exhaustive search of the databases was completed using the following: Academic One File, Jstor, National Criminal Justice Reference Service, ProQuest, HeinOnline, General One File, LexisNexus, and Sage Online. The search included using keywords such as “juvenile” “adolescent” and “youth” and cross referenced with the terms: “violence,” “serious,” “recidivism,” “confinement,” and “incarceration.” All of the studies are categorized according to the focus of the study, then by date of publication or submission in descending order. Articles included in this literature review are both individual studies and meta-analysis studies on juvenile offenders. This review is divided into sections on studies with similar focus as well as relevance to the current research questions. The discussion at the end of the chapter includes suggestions for additional research and the rationale for continuing research on juvenile offenders.

### **The Growth of Juvenile Offending and Sentencing**

Youth violence continues to be a popular topic of research and debate for criminal justice practitioners about the effectiveness of the juvenile justice system (Bachman & Schutt, 2014). Because of conflicting results from studies on juvenile crime, discussions abound on whether or not more institutions are needed, but the crime rate leaves no room for misunderstanding (Allard & Young, 2002; Ryon et al., 2013). The United States incarcerates more juveniles than any other country, yet the national juvenile crime rate has decreased over the last 20 years (Pew Center on the States, 2009). Sickmund and Puzzanchera (2014) compiled data from multiple government sources for the National Center for Juvenile Justice and the Department of Justice. They reported that the rate of

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juvenile crime has decreased since it peaked in 1997 showing data that fewer juveniles were arrested between 2001 and 2010 and violent crime declined by 12% and homicide by 18%. In addition, Sickmund and Puzanchera (2014) stated that the rate of violent crimes committed by juveniles continues to decrease regardless of the sanction; 2012 reported the lowest rate since 1980. The report also identified that the percentage of juveniles committed to prison for violent offenses is much higher than any other offenses; 7 out of 10 juveniles committed to prison were convicted of a violent offense in 2009. According to Sickmund and Puzanchera (2014), gang related homicides remain high in cities with a population over 100,000 and actually “increased more than 10% from 2009 to 2010” (p. 70). The 2014 report also shows that the number of juveniles in placement declined as much as 34% from 1999 to 2010 as well as the number of juveniles committing most offenses. Catastrophically, the data showed that there were about 7,600 juveniles held in adult jails in 2010 compared to less than 2,000 in 1990; this amounts to an increase of 3% every year from 2004-2009 (Sickmund & Puzanchera, 2014). This research indicates that the criminal justice system continues to utilize incarceration as a sanction for juvenile offenders regardless of the data, and while statistics showed less juveniles in residential facilities, they showed more in adult facilities.

The debate continues over effective juvenile sentencing as indicated by research from Brendtro and Mitchell (2007). They completed a short, but relevant review of sentencing sanctions for juvenile offenders following the recent Supreme Court Decision banning the death penalty for juvenile offenders and focused on whether or not juveniles should receive sentences of life in prison. According to Brendtro and Mitchell (2007), rehabilitation appears to no longer be the focus of the justice system with the move to

more punitive responses in order to protect society from the new population of “super predators.” Brendtro and Mitchell (2007) reported how this “‘super-predator’ mania turned out to be deceptive political propaganda” (p. 25) that contributed to the “get tough” policies discussed in other studies included in this review. They compiled data to support this hypothesis that indicated a decrease in juvenile murder convictions between 1990 and 2000 but an increase of 216% for life without parole sentences for serious juvenile offenders. Juvenile confinement continues even though juveniles are committing fewer violent crimes.

The “get tough” policies enacted in 1994 were a reaction to the widespread media coverage of violence by juveniles. These led to an increase in punishment for juveniles and an increase in incarceration as identified in research, for instance Mears et al. (2011). According to Mears et al. (2011), confinement in a secure facility does not deter future criminal behavior for juvenile offenders. Their research included a review of studies and prior research on the effectiveness of sanctions for juvenile offenders, including confinement, referred to as the “deep end” sanction. They reported that these facilities can be funded and be either state-run, county-run, or privately funded. According to Mears et al. (2011), there are a number of names and labels used for juvenile confinement that all mean the same thing. For instance, a juvenile can be placed or committed in any number of different types of placement such as: camps, residential facilities, training schools, youth services centers, institutes, correctional facilities, and academies. Mears et al. (2011) reported that not all youth will stay in one type of placement and could be transferred between centers or be sentenced according to blended sentencing, requiring the youth to begin their sentences in a juvenile facility then transfer to an adult prison at

the age of 18. The effectiveness of blended sentencing is addressed further in this review. According to Mears et al. (2011), the real impact of transfers to adult court and sentences to adult prisons is difficult to measure because of the diversity in sentencing that courts utilize. Generalizing across populations and areas can be difficult as well, and Mears et al. (2011) reported this can be attributed to how “juvenile court can administer different sanctions, either through informal or formal processing, as well as multiple sanctions simultaneously” (p. 517) that can differ from one jurisdiction to another. Mears et al.’s (2011) research adds to the analyses indicating a relationship between juvenile incarceration and recidivism.

The purpose of research is to expand on prior studies and introduce new theories on a social phenomenon (Bachman & Schutt, 2014). Recently published research by de Vries et al. (2015) and an earlier study by Barrett, Katsiyannis, and Zhang (2010) accomplished that by expanding upon earlier research. According to both, there is a small group of juveniles who begin offending young and graduate to more violent offenses throughout the teen years into adulthood (Barrett et al., 2010; de Vries et al., 2015). Barrett et al. (2010) reported additional findings on this subject. They said that “repeat offenders or recidivist account for the majority of delinquency” (p. 261), and this demographic of juveniles is most likely to continue the offending behavior, eventually finding themselves incarcerated or confined regardless of the sanction imposed. Barrett et al. (2010) examined 100,000 juveniles born between 1981 and 1988 from the South Carolina Department of Juvenile Justice with the purpose of replicating and enhancing a study from 2006 that used the same data originating with Clemson University. Barrett et al. (2010) proposed to study factors on the severity of offense, incarceration, and

recidivism. The juveniles in the study had all aged out of the juvenile system and at the time of the study were between 19 and 27 years of age. The sample of participants were comprised of 65% male, 35% female, 51% African American, 48% White, and 2% other with a mean age of 14.47 years (Barrett et al., 2010). The identifying offense for each juvenile was classified as low (status offenses), moderate (misdemeanor offenses), high (nonviolent felony), and very high (violent felony). Barrett et al. (2010) found that race and age were the best predictors of severity of offense with females referred for status offenses and African Americans referred for serious offenses. Barrett et al., (2010) also found that older juveniles and juveniles referred for serious crimes were more likely to be incarcerated, and the youth who were prosecuted were more likely to recidivate.

### **The Effectiveness of Confinement on Juvenile Offending**

While searching through the databases for studies on confinement and juvenile offending, the search results included studies that compared incarceration with diversion programs and alternatives to incarceration. Moreover, there were only a limited number found and retrieved through an extensive, systematic search that focused specifically on the effectiveness of incarceration, criminal sanctions, or confinement compared to other sanctions on the impact on juvenile recidivism. Those deemed most relevant to this current study include Hjalmarsson (2009), Andrews et al. (1990), Ryans et al. (2014), and Drake, Aos, and Miller (2009). Andrews et al. (1990) conducted a meta-analysis on studies of juvenile treatment by testing the effectiveness of criminal sanctions and correctional treatment on juvenile recidivism. Their study is discussed further in the review.

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Ryans et al. (2014) completed a study in Los Angeles County comparing the recidivism rate of violent offenders among in-home probation, group home placement, and secure confinement (in California this is labeled “camp”). The sample for their study consisted of 7,288 first time offenders arrested between 2003 and 2005, 16 years of age and younger, but excluded juvenile cases that were dismissed and the youth in the Correctional Youth Authority awaiting sentencing or transfer to adult court. The final sample resulted in 2,504 juvenile first time offenders. Ryans et al. (2014) used data from administrative records, child welfare data, and delinquency records. The results of their logistic regression models showed “13% of probation cases were associated with a new offense, 17% of group home cases were associated with a new offense, and 26% of camp cases were associated with a new offense” (Ryans et al., 2014, p. 13). These percentages increased dramatically after three years and five years following the first offense to 28% and 39% for in-home cases, 35% and 47% for group home cases and 51% and 65% for camp cases. Ryans et al. (2014) concluded that in-home placement compared to confinement was more cost-effective and more successful at reducing the risk of recidivism for violent juvenile offenders. They also found that males were more likely than females to commit additional crimes and that African Americans were more likely than both Hispanics and Whites (Ryans et al., 2014).

In reaction to the 1990s focus on “get tough” legislation, the federal justice system and states around the country built new juvenile and adult prisons with little regard to cost benefits or the impact on crime rates. As mentioned above, the debate continues on the justification of building even more. Many studies on juvenile offending



including some not selected for this review that focused on individual states for their data collection.

A study by Drake et al. (2009) was included here because of the focus and the methodology of their study on juvenile crime. Drake et al. (2009) conducted a meta-analysis review on what works to reduce juvenile crime in Washington State for the Washington State Institute for Public Policy that included the cost benefits, crime distributions, and the effects on crime. For the purpose of this review, only the distributions and effects on crime were included here rather than cost. Drake et al. (2009) compared juvenile corrections, adult corrections, and prevention programs on their effectiveness in reducing the crime rate. Drake et al. (2009) collected as many studies as were available that met their criteria to include a research group and a control group. Single studies were not included. The researchers used the standardized mean difference effect size to compare the effect size between studies. Drake et al. (2009) found that cognitive-behavioral evidence-based programs like education programs (19.4%), diversion project (17.6%), family therapy programs (18.1%), and multidimensional treatment foster care (17.9%) are the most effective at reducing recidivism. The results also indicated that more restrictive programs, such as wilderness and scared straight, showed increases in recidivism or no effect at all on reoffending rates.

To offer comparison to the above studies as well as studies discussed after, Hjalmarsson (2009) was included because of the location of the study and relevance to the focus of this dissertation on “get tough” legislation. Hjalmarsson (2009) focused on the effectiveness of juvenile court sanctions on the criminal behavior of juveniles

following release in Washington State. This was one of the few studies located on the specific deterrence of incarceration on juvenile recidivism.

Hjalmarsson (2009) utilized data collected from more than 20,000 juveniles sentenced in the Washington State juvenile courts and from the new sentencing guidelines from July 1998. According to Hjalmarsson (2009), the new guidelines based a juvenile's sentence on the severity of the crime and a "criminal history score" (p. 781). The juveniles included in the study were either adjudicated or convicted between the years 1981-2000. Many juveniles were convicted on numerous charges, but for the purpose of his data, Hjalmarsson (2009) only used the three most serious offenses.

According to Hjalmarsson (2009), the "get tough" persona mandated adult incarceration as a sanction for reducing juvenile criminal behavior, yet adult incarceration is not more effective at reducing future juvenile offending. The results of this study indicated that juvenile courts are effective at reducing recidivism in juveniles as shown in the analysis. More specifically, juveniles sentenced to incarceration from 15-36 weeks have a 37% lower rate of reoffending than those sentenced to a community sanction (Hjalmarsson, 2009). In addition, Hjalmarsson (2009) found that deterrence of incarceration was successful for a wide range of youths, including the more criminally experienced, older juvenile.

**The Effectiveness of Detention on Juvenile Offending.** Societies utilize confinement and detention for mostly two reasons: the care and protection of both the juvenile and society, and for rehabilitating the juvenile offender. Furthermore, detention was designed as temporary placement for juveniles awaiting trial, transfer, or release (Whitehead & Lab, 2015). Austin et al. (2005) and Holman and Ziedenberg (2006)

conducted research on the purposes of detention for juvenile offenders. Austin et al. (2005) completed a report for the Office of Juvenile Justice and Delinquency Prevention on alternatives to confinement and detention for juvenile offenders. Holman and Ziedenberg (2006) comprised a report focused on juvenile offending and the sanctions designed to reduce recidivism while Fagan and Guggenheim (1996), 20 years earlier, conducted an experiment testing the effectiveness of preventive detention on preventing future wrongdoing.

Thirty years of research on juvenile detention has remained relatively steadfast about its effectiveness on criminal behavior. Fagan and Guggenheim (1996) examined the ability of detention on predicting and preventing future dangerousness by juvenile offenders. They defined preventive detention as “a short-term prediction of dangerousness, or the prediction of some future harm” (p. 419). The Supreme Court determined in *Schall v Martin* and *United States v. Salerno* that preventive detention is not punishment. Fagan and Guggenheim (1996) used two samples of juveniles from two courts in New York City, (N=74) who had either been ordered to detention under the New York Family Court Act then released within a few hours, or were validated as meeting the prerequisite for detention according to the procedures from the *Schall* case that serious risk exists for future behavior. The latter group met all the requirements for admission to detention, but were released and both of the groups comprised the experimental group. The control group consisted of matched cases considering all variables such as arrests, age, gender, race, committing offense, and prior record (Fagan & Guggenheim, 1996).

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Fagan and Guggenheim (1996) found that within 90 days over 40% of the experimental group was rearrested compared to 15.6% of the control group and 18.8% of the experimental group was arrested for violent offenses compared to 7.8% for the control. As a result of the analysis by Fagan and Guggenheim (1996), the long term prediction models showed that within one year the experimental group was more likely to be rearrested for any offense or a violent offense and the test resulted in statistical significance. According to Fagan and Guggenheim (1996), the judges that ruled on the need for predictive detention in order to prevent future offending actually would have improved on the prediction and for those in the control group judges would have committed 25% more youth than would have offended.

Austin et al. (2005) reported that detention serves two purposes: to protect society and to ensure appearance of the youth in court, yet they found data to the contrary. They stated that some juveniles are held in detention for status offenses and probation technical violations. Holman and Ziedenberg (2006) included in their report the concerns of the 1990s that led to “get tough” laws in reaction to the warning of the new “superpredators” that was also reported by Schubert et al. (2010) and Brendtro and Mitchell (2007). This new orientation of the juvenile justice system led to an increase in the use of detention for minor and major offenses. Austin et al. (2005) reported that alternatives to incarceration are needed due to overcrowding that can be dangerous to the staff and “detrimental to the rehabilitation and treatment of the youth who are confined” (p. 2). They also stated that overcrowding can also lead to increased occurrences of violent behavior. Holman and Ziedenberg (2006) agreed and stated that detention serves a temporary role to supervise the most serious juveniles and those most dangerous to the community. Their research

included not only the impact of detention on juvenile recidivism, but also on juvenile mental health, education, employment, and the economic impact on communities. They acknowledged that juveniles have “different levels of culpability and capacity than adults” (Holman & Ziedenberg, 2006, p. 12).

Holman and Ziedenberg (2006) included comments from Dr. Delbert Elliott’s presidential address to the American Society of Criminology that stated as many as 33% of juveniles will engage in offending behavior but will “age out” of the behavior and stop on their own without any intervention from the system. According to Holman and Ziedenberg (2006), detention for any juvenile regardless of the reason can have lasting harm on future behavior and delay the normal “aging out” process.

Holman and Ziedenberg (2006) concluded that the use of detention for juveniles was found to increase offending by “aggravating the recidivism...[and youth who were detained as compared to those who were not]...are more likely to be referred to court, see their cases progress through the system to adjudication and disposition, have a formal disposition filed against them, and receive a more serious disposition” (p. 5). Austin et al. (2005) agree when they state that alternatives are needed because incarceration and detention have been proven ineffective resulting in higher recidivism rates and a decrease in exposure to positive influences. Their report includes multiple studies that support the alternatives of community-based programs because of the significant research between the 1960s and 1990s indicating more effective sanctions than incarceration (e.g.: Coates, Miller, & Ohlin, 1978; Howell, 1995; Krisberg, Austin, & Steele, 1989) (Austin et al., 2005).

## **The Effectiveness of Residential Placement on Juvenile Offending**

**Virginia Juvenile Residential Placements.** Residential placement is another term for a correctional facility for juvenile offenders, and, depending on the severity of the offense and the behavioral level of the facility, many resemble incarceration with and without bars. According to the National Center for Juvenile Justice, residential facilities for juveniles can vary in facility type ranging from home like placements to adult-like prisons (Sickmund & Puzzanchera, 2014).

Heilbrun et al. (2000) conducted a study on the recidivism rates for youth in Virginia who were committed and then released by the Virginia Department of Juvenile Justice (DJJ). Participants in their study resided in their community for no less than 12 months and no more than 16. Data was obtained from probation officers with the Virginia DJJ from three different study sites, and the offenses that each youth was committed on ranged from crimes against persons, drug offenses, to crimes against property. Heilbrun et al. (2000) collected information on rates of reoffending and found that 14% had committed a crime against property, 10% had committed a drug offense, and 10% committed a crime against persons. The results of the study indicated that the sites of the study impacted the rates of offending for youth within that area. The urban site resulted in the highest recidivism rate with the suburban site being the lowest (Heilbrun et al., 2000). The researchers concluded that due to the number of uncontrollable factors within the study, such as the different number of probation officers within each area and the availability of resources such as mental health, the differences in offending rates could not be attributed to any one cause.

**The Michigan Nokomis Challenge Program.** One of the intended results of “get tough” sanctions for juvenile offenders was the idea that an increase in confinement or residential placement would increase rehabilitation (Brendtro & Mitchell, 2007; Jolivet et al., 2010; Urbina & White, 2009). Deschenes and Greenwood (1998) conducted a program evaluation of The Nokomis Challenge Program in Michigan which is an alternative placement for delinquent youth in Michigan as opposed to the traditional training school. According to Deschenes and Greenwood (1998), this program was designed in 1989 to meet the needs of youth “identified as low self-concept/self-esteem, underdeveloped socialization skills, dysfunctional thought processes, dysfunctional family system, lacking a positive life direction, substance abuse, underdeveloped empathy skills, underdeveloped sense of community, and a history of abuse or neglect” (p. 272) adjudicated for a non-violent felony offense. The program is cognitively based for a fixed length of time to respond to social and behavior skills that begin with a short-term residential stay in a rural wilderness area with intensive treatment services for the next nine months.

Deschenes and Greenwood (1998) compared the effectiveness of the Nokomis program with traditional residential placements in Michigan. The study was conducted using a quasi-experiential design including one group of youth placed at Nokomis and another comparable group placed in other residential settings due to their location or refusal of the court to place at Nokomis. For a number of reasons, youth may not have completed the entire 12 months at Nokomis or the traditional residential placement, only about 40% completed the Nokomis program while 84% completed the latter. Both groups were followed for 24 months following completion of the programs, at 12, 18 and

24 month intervals. The results of the study indicated little difference in arrest rates for both groups of juvenile offenders in the last six months of the review period, but a substantial difference in the first 12 months with 26% of the Nokomis group compared to 3% in the control group re-arrested for a felony offense. According to Deschenes and Greenwood (1998), the results indicated that youth placed at Nokomis failed at a faster rate than youth placed in traditional placement.

### **The Effectiveness of Boot Camps on Juvenile Offending**

Correctional boot camps were originally designed around a military-style training module by George Cadwalader in 1973 and increased in popularity in the 1980s as a sentencing outcome for young adult offenders (Elrod & Ryder, 2014). They became especially popular in the 1990s for juvenile offenders following the “get tough” trend for juveniles (Kempinen & Kurlychek, 2003). Boot camps differ from other correctional facilities by their use of exercise, physical labor, strict schedule, daily work, and the shock incarceration they supply.

There are numerous studies that focused on boot camps, but not many that compared the recidivism rates between those and other less intensive outcomes. Steiner and Giacomazzi (2007) examined the effectiveness of boot camp with probation for juveniles transferred to adult court on recidivism. According to Steiner and Giacomazzi (2007), research suggests that most juveniles waived to adult court receive either probation or incarceration. Bottcher and Ezell (2005) studied the long term arrest data of California’s intensive boot camp program, Kempinen and Kurlychek (2003) conducted research on the effectiveness of correctional boot camps for juveniles.



## JUVENILE RECIDIVISM AND INCARCERATION

Contrary to public opinion, many youths waived to adult court do not receive a harsher punishment than if they had remained in the juvenile system and contrary to the “get tough” idyllic, many will receive probation. Steiner and Giacomazzi (2007) compared the recidivism rate for juveniles ordered to boot camp and those ordered to probation from a sample of juveniles waived to adult criminal court between 1995 and 1999. The sample for this study was the juvenile population in a northwestern rural state who were waived to criminal court and were either sentenced to probation or boot camp known as the rider program. According to Steiner and Giacomazzi (2007), there were 102 juveniles waived to adult court between the years 1995 and 1999 with 49 sentenced to boot camp, 33 received probation, and 20 not released and not eligible for the study. The juveniles in boot camp composed the experimental group while the probationers comprised the control group. Steiner and Giacomazzi (2007) found that 96% completed the rider program, but found little differences in recidivism between the experimental group and the control group. In the study, Steiner and Giacomazzi (2007) controlled for age, offense type, race, and criminal history and concluded that the rider program did not reduce the likelihood of recidivism over those ordered to probation.

The California Youth Authority (CYA) has been the center of much discussion on juvenile offending due to their high number of juvenile offenders and the amount of violent crimes. Bottcher and Ezell (2005) compared outcome data on the CYA’s intensive parole program (six months) and juvenile boot camp (LEAD) with outcome data on standard parole (two months) and custody. According to Bottcher and Ezell (2005) LEAD was “designed as an alternate placement for the CYA’s least serious male offenders...[and]...was typical of other juvenile boot camps around the country” (p.

310). The program focused on correctional treatment and tight security that lasted from 1992 through 1997 with juvenile offenders beginning the program with a four-month institutional stage followed by an intense aftercare stage lasting six months. Bottcher and Ezell (2005) explained that CYA's intention was to provide a military type environment promoting self-discipline and the development of new attitudes and skills that would reduce future offending. The results of interview with the juveniles showed that the clients were enthusiastic about the discipline, liked the physical aspect and the 12-step treatment and reported feeling less fear than those in the control group placed in standard custody (Bottcher & Ezell, 2005).

The sample for Bottcher and Ezell's (2005) study consisted of data on the three most serious charges from the California Department of Justice on arrests for various time intervals (4) up to 7.5 years following release for the experimental and control groups. Most of the cases within each group included comparable juveniles who were serving their first commitments. Bottcher and Ezell (2005) found that 44% of the youth leaving boot camp were arrested for a new criminal offense compared to 50% of the control group and 30% of the experimental group compared to 37% of the control group for serious offenses. They concluded that both groups averaged the same number of offenders arrested at least once at the end of the follow-up period for a serious offense. According to Bottcher and Ezell (2005) there is no significant difference in the average time to first arrest between the boot camp group and the control group and concluded that the LEAD program did not reduce juvenile recidivism and "boot camps are ineffective as correctional treatment" (p. 328).

## JUVENILE RECIDIVISM AND INCARCERATION

Kempinen and Kurlychek (2003) found through their literature review that studies on a rehabilitative model of boot camp style program are limited. Therefore, they compared traditional juvenile prison to rehabilitative boot camps using a quasi-experimental study design between a group of offenders who graduated from boot camp and a group of offenders released from state prison during 1996 and 1997. Kempinen and Kurlychek (2003) discussed the many differences between boot camps due to their instructional programming, the level of training and the level of discipline. As a result of their research, they limited their search on the quasi-military style discipline from eight states and chose the Pennsylvania State Motivational Boot Camp Program as the focus of their analysis of recidivism rates. Kempinen and Kurlychek (2003) used information from the Pennsylvania Board of Probation and Parole, the Department of Corrections and the Pennsylvania Commission on Crime and Delinquency.

As a result of the research, Kempinen and Kurlychek (2003) indicated different types of recidivism between the two groups of juveniles. The prison group was more likely to reoffend with a new conviction compared to the boot camp group who are more likely to fail on parole. The results also show that offenders in both groups who are young with a prior arrest are more likely to reoffend. Kempinen and Kurlychek (2003) reported that those sentenced to the maximum have a higher risk at reoffending, and that the prison group altogether was not more likely to recidivate than the boot camp group (39% vs 44%). The researchers expected to find that the rehabilitative boot camp group would be less likely to recidivate, but the results indicated that although they were more likely to violate their parole, they are less likely to commit new crimes. This finding was not statistically significant.

## **The Effectiveness of Institutional Programming on Juvenile Offending**

**Research that Utilized Meta-Analysis Design.** The meta-analysis approach to measuring the dependent variable of juvenile offending as a result of many different independent variables has been utilized for over 30 years, including in 2015, 2009, 1998 and 1990; however, all of these studies focused on the effectiveness of programs, not placements, and most did not concentrate on the serious juvenile offender. Lipsey (2009), Lipsey and Wilson (1998) and Andrews et al. (1990) conducted meta-analyses to test the effectiveness of a broad range of interventions on offending and included what if any programs or philosophies are effective at reducing a juvenile's risk to recidivate. Lipsey's (2009) study was a furtherance of previous research on the same topic but his study used data from 361 reports and studies resulting in 548 samples that were coded on more than 150 items. Andrews et al. (1990) also conducted a systematic review in furtherance of earlier research by Whitehead and Lab (1989) on the success of correctional treatment in preventing recidivism in juveniles. Andrews et al.'s (1990) research was focused on 90 studies in two separate samples that included published journal articles from the earlier study and articles not included in the earlier study that were found in the researchers' files. Whereas deVries, Hoeve, Assink, Stams and Asscher (2015) also used the meta-analysis design to review studies on the impact of prevention programs on juvenile recidivism, they also focused on psychopathology in juveniles. de Vries et al. (2015) found that the presence of a mental illness for a juvenile can impact their adjudicatory process as indicated by the high rate of psychopathology in serious juvenile offenders, and their results indicated that the rates of mental health disorders are higher for juveniles in detention or a secure facility (60-65%) than for juveniles upon

intake (35%) into the juvenile system or for juveniles (15%) who remain in the community.

Lipsey (2009) found results that were “striking” (p. 143) due to the low number of factors that were significant with the types of interventions to reduce juvenile recidivism. The study measured multiple outcomes according to supervision level including no supervision, diversion, probation supervision, and confinement (Lipsey, 2009). He found that most were relatively equal with the exceptions of the relationship between incarcerated juveniles and the effectiveness of counseling as well as skill building and community-based programs. According to Andrews et al. (1990), at the time of their study, they could not find a “single review of the effects of judicial sanctioning on criminal recidivism [that] has reached positive conclusions except when the extremes of incapacitation are tested” (p. 373).

In order to contribute relevant research and results to the current empirical data on juvenile offenders, the most recent and current studies were sought. Studies within the last 10 years on criminal sanctions for juvenile offenders were not easily available through the databases or search engines, but one significant study was located with empirical data that was published 25 years ago: Andrews et al. (1990). An earlier study by Whitehead and Lab (1989) subjected studies to meta-analysis and Andrews et al. (1990) expanded on their research. The study compared the impact of appropriate correctional treatment, correctional service, criminal sanctions, unspecified service and inappropriate service on juvenile recidivism (Andrews et al., 1990). Andrews et al. (1990) used the effect size method on the two samples of studies and found that treatment in the correctional setting can be more successful at reducing recidivism than criminal

sanctions alone without treatment if the treatment is focused on each offenders' specific needs, risk, and responsivity. The results of the review by Andrews et al. (1990) found that treatment focused on high-risk juvenile offenders was more successful at reducing recidivism than treatment focused on low-risk juvenile offenders, and that 40% of the studies reported positive results. Lipsey (2009) found that secure confinement that used evidence-based programs could reduce recidivism rates in juvenile offenders. In addition, Andrews et al. (1990) concluded that confinement will only work to impact recidivism when clinical programming is a part of the confinement (Andrew et al., 1990). Andrews et al. (1990) found that appropriate correctional service that focused on risk, need, and responsivity was more effective at reducing juvenile recidivism than criminal sanctions (judicial disposition) that did not include any rehabilitative service. The researchers confirmed their hypotheses and prior research that rehabilitation is needed in juvenile corrections and does impact the risk of recidivism (Andrews et al., 1990). de Vries et al. (2015) found that multi-systematic therapy included in programming for any placement is most beneficial at reducing recidivism rates and concluded that prevention programs targeted at persistent juvenile offenders can reduce recidivism by 13%. Their research indicates a gap in research on violent juvenile offenders and the prevalence of mental disorders on reducing recidivism (de Vries et al., 2015).

**Research that Utilized Individual Studies.** There were also individual studies that focused on the effectiveness of correctional programs on juvenile offending. Lowenkamp, Makarios, Latessa, Lemke, and Smith (2010) focused on the effectiveness of reducing recidivism in Ohio's community correctional facilities. Their study examined "whether programs targeted criminogenic needs with cognitive behavioral modality" and

whether or not this technique was effective in reducing recidivism. As a measurement tool, the researchers used the scores from an actuarial assessment with 65 separate items, CPAI that measured the quality of a program. The program was scored according to the percentage of the total points it received in any one area. Lowenkamp et al. (2010) used a quasi-experimental design method to compare the control group consisting of those released from confinement and the test group, those released from community-based correctional sanctions. The findings of the study showed that some of the programs did not show positive effect sizes in favor of the community programs but on the average, most community-based programs compared to confinement did show positive effect sizes. The results of Lowenkamp et al.'s (2010) study found that the success of corrections for juveniles is contingent on effectively reducing anti-social behavior, and suggested that correctional interventions should target the high-risk juveniles as opposed to low-risk to prevent the low-risk from exposure to antisocial behavior and a disruption from their social network. The individual studies and the meta-analyses assisted in addressing the research questions for this review and supported the need for programs that offer cognitive behavioral therapy as well as therapy targeted at high-risk offenders.

### **The Effectiveness of Length of Incarceration on Juvenile Offending**

The search of the databases for this systematic review resulted in two studies since 2000 that addressed the effectiveness of length of stay in a confined facility on juvenile offending. Cottle, Lee, and Heilbrun (2001) used the meta-analytic design to determine a number of risk factors including length of incarceration on rates of juvenile recidivism. Winokur, Smith, Bontrager, and Blankenship (2008) completed an individual study on the impact of length of stay on recidivism from a sample of juveniles released

from commitment programs in Florida between 1998 and 2000. Winokur et al. (2008) used a sample that included mostly white male juveniles 13 years of age at the time of commitment with an average length of stay of 6.3 months. The juveniles included in the sample were sentenced according to three risk levels as identified by Florida's Juvenile Justice Information System: low, moderate, and high. Winokur et al. (2008) focused their research on whether or not shorter periods of confinement were more effective in reducing the risk at re-offense than longer periods (over three months). Cottle et al. (2001) located 23 published articles that studied juveniles between the ages of 12 and 21 using data such as official records, self-reports, and collateral sources to measure recidivism. The study used 30 predictor variables that were coded into eight domains.

The results of Winokur et al.'s (2008) research showed that low-risk and moderate-risk juveniles were minimally effected by longer lengths of stay; however, low-risk juveniles from non-confinement placements along with juveniles post-release from high-risk placements showed lower recidivism rates for stays from 0-3 months and 13 or more months. Cottle et al. (2001) found a number of variables that increased the risk of recidivism such as low verbal IQ, substance abuse, conduct problems, and length of incarceration. As a result of Winokur et al.'s (2008) study, results indicated that within one year of release, females are less likely to recidivate after short stays than males, regardless of the level of risk. Winokur et al. (2008) concluded that the shortest length of stay that the state allowed for high risk offenders and a length of stay between 17 and 20 months, reduced the risk at recidivism while moderate and longer stays for this population increased the risk. According to Cottle et al. (2001), the results from their study showed that age at first commitment and a history of pathology were the strongest



predictors of recidivism whereas length of first incarceration and the number of incarcerations were weak predictors. The results of these studies offered continued support for the research questions that were the focus of the quantitative method of this dissertation.

### **The Effectiveness of Blended Sentences on Juvenile Offending**

Blended sentencing is a form of sentencing juveniles who meet the court's requirement for waiver to criminal court and is routinely used for the most serious and violent of juveniles. Blended sentencing requires that the juvenile serve part of a sentence in juvenile corrections until the age of 18 and the conclusion of the criminal sentence in adult prison (Haerle, 2014; Trulson, Caudill, Haerle & DeLisi, 2012). According to research, courts use this sanction to punish and rehabilitate juvenile offenders concurrently (Haerle, 2014; Trulson et al., 2012). Haerle (2014), Trulson et al. (2012), and Trulson, Haerle, DeLisi and Marquart (2011) focused their research on the effectiveness of blended sentencing on juvenile offending. Haerle (2014) conducted a study of incarcerated juvenile offenders and the effects of rehabilitation on recidivism rates when blended sentencing is the sanction. The data used in the study was collected by a state that utilized blended sentencing for crimes identified by the legislature as severe; the juvenile must be convicted on one of the 30 identified criminal offenses (Haerle, 2014). Trulson et al. (2012) studied a unique sample of offenders who were spared the adult portion of their blended sentence in a Juvenile Correctional System (JCS) in a southern area. Trulson et al. (2012) studied the recidivism rates on a sample of 1,804 serious and violent male offenders following incarceration. In the system under study, the use of blended sentencing is routinely used for violent juveniles where they

serve the first portion of their sentence in a juvenile facility and then are transferred to adult prison at the age of 18 for the remainder of their sentence. Trulson et al. (2011) explored recidivism rates of 1,800 serious male juvenile offenders sentenced under blended sentencing legislation in a state that used the Violent Offender Statute (VOS). Under this statute, the offender is first placed in a juvenile facility and before transfer to the adult prison at the age of 18, a hearing is conducted to determine if the additional determinate sentence in adult prison will proceed or if the juvenile will remain in the juvenile facility to a maximum age of 21 (Trulson et al., 2011).

Haerle (2014) compared two groups of serious juvenile offenders according to the “dose” (length) of intensive treatment administered during the juvenile incarceration portion of a blended sentence. One southern state developed a Violent Offender Treatment Program (VOTP) in the 1980s with the goal of rehabilitating the most serious juvenile offenders (Haerle, 2014). In order to qualify for this program, the offenders had to meet certain criteria after 2-4 years of confinement, and the juveniles who did participate (treatment group  $n = 277$ ) were compared to a group of juvenile offenders who did not (comparison group  $n = 1,169$ ) in terms of their recidivism rates. The total sample of offenders included participants committed from 1987 through 2007. Haerle (2014) measured recidivism according to “automated arrest records [that] were provided to the YSA by the Department of Law Enforcement” (p. 9) including any arrest during the 3-year follow up. According to Haerle (2014), the results of recidivism were significantly less for those offenders who received a strong “dose” of treatment at 54.4% to any “dose” of treatment at 62.1% compared to those who did not at 68.9%. After studying the rates of recidivism after three years of release from incarceration, Haerle

(20014) concluded that a strong dose of treatment reduces the risk significantly of recidivism for violent juveniles compared to a low dose or no dose at all.

The juvenile offenders in Trulson et al.'s (2012) study were incarcerated for homicide, and the study included whether a gang affiliation was a contributing factor on recidivism for these violent offenders. Many times the court will suspend the adult portion of the system, ordering the youth to remain in a juvenile facility up to age 20. Trulson et al. (2012) used data on only those offenders who began and or remained in the juvenile system. Their results were unexpected and indicated no statistical relationship with all but one of their analyses. Trulson et al. (2012) found that gang affiliation and a prior conviction of a gang related homicide did not impact the recidivism rate. Juveniles convicted of a homicide whether it was gang-related or not were more likely to commit additional felony offenses than those not convicted of homicides (Trulson et al., 2012). In addition, Trulson et al. (2012) concluded that those convicted on any gang-related offense, including homicide, were more likely to reoffend and be rearrested following their sentence.

All offenders in the sample for Trulson et al.'s (2011) research were released from state incarceration from a juvenile correctional facility; therefore, their adult sentences were commuted. The data for Trulson et al.'s (2011) study originated with the YCS who collected information on demographics, arrests, and other variables. For the purpose of this literature review, only the recidivism rates are discussed. The sample of offenders included 26% sentenced for homicide, 39% for a serious sexual-related offense, 20% for serious property/person offense, and 16% for offenses such as aggravated assault and aggravated kidnapping (Trulson et al., 2011). The results of the study indicated that 64%

of all released juvenile offenders were rearrested and 78% of those were for felonies. Trulson et al. (2011) reported that even though their statistics allowed for a “modest amount of variance, [they] are missing crucial variables for a more complete explanation of the postrelease outcomes” (p. 272), and reported that of this sample of violent and serious offender, 65% were found guilty of assaulting staff and the residents during incarceration. Trulson et al. (2011) concluded that these offenders that did not serve the rest of a blended sentence were much more likely than not to recidivate, but just as important are the extraneous factors that may or may not have increased that percentage. The true impact of blended sentencing on recidivism cannot be concluded using the results of these three studies since the juveniles used in the sample did not serve the adult portion of their sentence; however, the results of all three did indicate a high level of recidivism following confinement.

### **The Effectiveness of Adult Incarceration on Juvenile Offending**

Since the “get tough” legislation in the 1990s, the transfer of a juvenile to adult court resulting in incarceration remains a highly debated topic in the research and in the media. According to prior research, waivers should benefit society by offering rehabilitation and protecting society while deterring juvenile offending (Griffin, Addie, Adams, & Firestine, 2011; Roberts, 2004; Schubert et al., 2010). The following studies focused on the effectiveness of adult confinement at these anticipated outcomes. Griffin et al. (2011), Schubert et al. (2010), and Myers (2003) focused on the effectiveness of juvenile transfers to adult court on preventing future offending. Stahlkopf, Males, and Macallair (2010) studied the impact of adult incarceration on crime rates, and Urbina and

White (2009) focused on the opinion of criminal justice practitioners towards the success of transfer to adult court on juvenile offending rates.

Griffin et al. (2011) completed a report that focused on state transfer laws as a reaction to the peak in 1994 of serious juvenile offending for the Office of Juvenile Justice and Delinquency Prevention. Many states have mandatory transfer for certain crimes if certain statutory criteria are met as determined by the juvenile court judge such as capital crimes, murder, and certain drug, person, property, and weapon offenses (Griffin et al., 2011). According to Griffin et al. (2011), the most common offense that results in juvenile transfer to adult court is murder. Griffin et al. (2011) found that the number of waivers have decreased in conjunction with a decline in serious violent offending since 1994; however, this could be equated to the new process that bypasses the court resulting in transfer without waivers. According to Griffin et al. (2011), in as many as 15 states, “there is no hearing, no evidentiary record and no opportunity for defendants to test (or even know) the basis for a prosecutor’s decision to proceed in criminal court” (p. 5).

Schubert et al. (2010) used data collected from The Pathways to Desistance study in order to examine a relationship between serious juvenile offenders transferred to criminal court and recidivism. Schubert et al. (2010) relied on the longitudinal study on serious juvenile offenders from the Pathways study (1,354 youths adjudicated for a serious offense from 2000 to 2003 in Philadelphia County and Maricopa County). The juveniles ranged in ages from 14 to 17 at the time of the offense. The criteria for inclusion in the sample for Schubert et al.’s (2010) study included transfer to adult court for the offense leaving 193 from the youth in Maricopa County and only 51 from

Philadelphia County. Schubert et al. (2010) found that the majority of juveniles who returned to the community following institutional sanctions continued with antisocial behavior at some level and 66% recidivated and received another sanction of confinement. They only found 18 juveniles who stopped the pattern of anti-social behaviors; however, an important finding from this study indicated that juveniles who were transferred on their first petition were more mature, older, and at less risk to participate in anti-social behavior. In addition, these same juveniles were more likely to return to positive activities in the community and were less likely to reoffend (Schubert et al., 2010). According to the research, after most “states adopted “get tough” juvenile justice policies “which included *statutory exclusion* provisions, specifying age and crime criteria to determine which youth to transfer” (Schubert et al., 2010, p. 461), the waiver decision moved away from the judges’ discretion to the prosecutors’ discretion and from rehabilitation to retribution. Schubert et al. (2010) reported that the decision to transfer no longer was based on the individual offender or the appropriateness of the individual but more on the criminal act. They determined that the results could have been influenced by judicial personnel only choosing those juveniles most prone to criminal behavior for incarceration.

Urbina and White (2009) focused on the impact of juveniles in adult court vs juvenile court by including six factors that impact waivers in Wisconsin through the use of survey research, mail questionnaires, telephone and face to face interviews. The sample included 128 court officials, public offenders, prosecutors and judges. According to Urbina and White (2009), the judges, prosecutors, and defense attorneys have the discretion in some cases to waive them to adult court or keep them in juvenile court

whereas other cases are bound by policies, procedures, and rules. They found that most participants (100) stated that rehabilitation is no longer effective at reducing crime in the juvenile system, but does influence practitioners' reason to transfer (Urbina & White, 2009). The results of the surveys also found the court officials (84) stated that violent behavior by juveniles is increasing and affects the rationale to transfer as well as the belief that juveniles need confinement (79) (Urbina & White, 2009). All of the respondents in the sample (124) acknowledged that the severity of the offense and prior offenses influenced the decision to transfer more than other factors (Urbina & White, 2009). Urbina and White (2009) concluded from all the responses that most "practitioners did not believe [waivers] are an effective mechanism" (p. 129), but still acknowledged that incarceration is dangerous for juvenile offenders. Consequently, most who participated in the study still support the use of waivers because they reported that the benefits outweigh the harm (Urbina & White, 2009).

Stahlkopf et al. (2010) compared juvenile crime with adult crime in a study on the crime trends since 1960 in California. They collected imprisonment data from the California Youth Authority and the California Department of Justice's Criminal Justice Statistics Center on juveniles for 46 years and data on adults for 25 years from the California Department of Corrections and Rehabilitation. They compared data from California with similar data from Texas. According to Stahlkopf et al. (2010), deterrence theory dating back to Beccaria and Bentham can be used to explain the purpose of incarceration as a deterrent. Stahlkopf et al. (2010) stated that imprisonment and confinement under the incapacitation theory, reduces crime rates because offenders are incapable of committing crimes while incarcerated. According to Stahlkopf et al.

(2010), if incarceration reduces crime then, because Texas incarcerates many more juvenile offenders than California, the crime rate in Texas should be much lower than that in California. However, the results of the study found instead, that the use of incarceration for juveniles has no apparent impact on recidivism rates (Stahlkopf et al., 2010).

Myers (2003) explored the rates of recidivism of violent juveniles in Pennsylvania on a cohort of 494 male offenders. Myers (2003) compared juvenile offenders sentenced in juvenile court with those waived to adult court. The offenders were arrested in 1994 and were between 15 and 18 years of age at the time of offense. Of the sample, 79 were transferred to adult court under judicial waiver and the other 415 remained in juvenile court (Myers, 2003). It is important to point out that this was prior to the new legislative waiver law of 1996 and a rationale of the researcher behind the study. The data for this study originated with the Center for Juvenile Justice Training and Research and included data on offenders charged with aggravated assault, robbery, and use of a deadly weapon (Myers, 2003). Myers (2003) found that the juveniles who were waived to adult court were more likely to recidivate than those who remained in the juvenile court; however, the results of Cox regression estimates showed “longer periods of confinement [for serious and violent juvenile offenders] in correctional facilities appear necessary to provide deterrence, rehabilitation, maturation, or some combination of effects on future behavior” (p. 94).

Butts and Mears (2001) conducted earlier research on the effectiveness of the sanctions that originated during the “get tough” era. According to their research, the most widely used sanction for this era was the transfer of juveniles to adult court with the



intention of providing harsher penalties and longer sentences for juveniles. Butts and Mears (2001) reported that every state has its own laws concerning juvenile transfer resulting in limitations to national data on transfers. Transfers were a reaction to the “get tough” approach to juvenile crime by policymakers, and Butts and Mears (2001) stated that the public assumes that a juvenile will receive a harsher punishment in adult court and the punishment will increase the severity and certainty of sanctions. The results indicate that youth transferred to adult court are convicted at rates as low as 60% and as high as 90% with incarceration as the result in 30% to 60% of those convicted (Butts & Mears, 2001).

Butts and Mears (2001) compiled research findings on the impact on recidivism and found that juveniles transferred to adult court are no less likely to reoffend than their counterparts who remain in the juvenile justice and research shows they might recidivate more. They also stated that many times juveniles receive a comparable sentence in adult court as in juvenile court and concluded that states that utilize waivers as a response to juvenile crime do not see a reduction in the juvenile crime rate (Butts & Mears, 2001).

According to Urbina and White (2009), as a result of the data collection and the research, it is not apparent that transfers to adult court reduced recidivism or even reduced the rate of crime but that court officials still make the decision to transfer when they are “not sure” of the benefits. Schubert et al. (2010) concluded that “time in jail or prison provides little benefit” (p. 471) even for the most serious juvenile offender. According to Griffin et al. (2011) research is difficult to find on the true impact of waivers on recidivism rates for juveniles since, consequently, only 13 states publicly report all transfers resulting in the impact of waivers largely underestimated.

## **Contextual Risk Factors and the Effectiveness of Incarceration on Juvenile Offending**

As a result of the in-depth database search for this literature review, studies were found that researched the impact of contextual risk factors such as environment, age at offense, education, parenting skills, psychosocial development, and prior criminal behavior on the effectiveness of incarceration on serious juvenile offending. Petitclerc, Gatti, Vitaro, and Tremblay (2013); Lattimore, McDonald, Piquero, Linster and Visser (2004); Mulvey and Schubert (2012); Mulder, Brand, Bullens and van Marle (2011); and Grunwald et al. (2010) completed quantitative research on serious juvenile offenders, whereas Mincey, Maldonado, Lacey, and Thompson (2008) conducted a qualitative study on a sample of juveniles following incarceration in Florida.

There are contextual risk factors that can contribute to or impede the effectiveness of sanctions on offending. Petitclerc et al. (2013) focused on the relationship between recidivism and correctional incarceration of serious juvenile offenders by using self-reported behaviors like alcohol/drug use, delinquency, antisocial behavior, and any exposure to juvenile court to help explain the rate of reoffending in young adulthood and later in life. Petitclerc et al. (2013) began with a sample of 1,037 males from low-socioeconomic areas during 1984 in Montreal. From this sample they formed the control group comprised of juveniles who were arrested but never ordered to appear in court and the exposed group that did appear in juvenile court between the ages of 12 and 17, totaling 225 participants. Petitclerc et al. (2013) found that the exposed group after reaching adulthood had three times the risk of a conviction in adult court by age 25 and committed as much as twice as many violent and non-violent offences as the control

group. Petitcherc et al. (2013) also found that juveniles are more likely to continue their criminal behavior following formal processing in the court instead of an alternate outcome. The results also indicated that future criminality could be diverted if rehabilitation was utilized more routinely for all delinquent behavior including violent acts and if emphasis was placed on the needs of juveniles instead of on “the nature of their offense” (Petitcherc et al., 2013, p. 295).

Other contextual risk factors such as geographic location and individual characteristics can be used to explain patterns of juvenile criminal behavior including recidivism. Lattimore et al. (2004) focused their research on these patterns of offenders by studying the recidivism rates following their release from the California Youth Authority (CYA) between 1981-1982 and 1986-1987. According to Lattimore et al. (2004) the CYA handles the state’s most serious youth offenders and is the last stop placement for juvenile offenders in the juvenile system. Data collected by the CYA was used to study arrest frequency with risk factors such as family background, individual characteristics and criminal history. Lattimore et al. (2004) measured the outcome for the 3,586 cases with arrests data and time incarcerated and they focused on the three years immediately following release from their institutional commitment with the CYA.

The results of the study by Lattimore et al. (2004) indicated that older juveniles at the time of release have a higher arrest frequency than their younger counterparts as well as those with more extensive past arrest frequencies. Offenders who demonstrated violence during incarceration were also more likely to reoffend, with an increase in arrest rate of 14%, and those involved with gang activities had a 9% increase for rearrests post release. According to Lattimore et al. (2004), antisocial behavior prior to the initial arrest

and confinement is important in predicting future arrests and the number of prior arrest is the best predictor of future arrests.

Expanding upon prior results or replicating a prior study is one way researchers validate outcomes and results. Mulvey and Schubert (2012) used secondary data collected during The Pathways to Desistance study that followed serious juvenile offenders over the course of 7 years from November 2000 through January 2003. According to Mulvey and Schubert (2012), the sample used in the Pathways study included 1,170 males and 184 females (1,354) serious juvenile offenders between the ages of 14 and 18. They explained that the study consisted of a two-site longitudinal design that studied multiple factors, including background characteristics, individual functioning, psychosocial development, personal and family relationships, and offending behavior (Mulvey & Schubert, 2012). Other studies have used the same data for their purposes of research and one such study is included above. According to Mulvey and Schubert (2012), the juveniles varied among the number of previous court referrals with an average of 3 and as few as 0. Mulvey and Schubert (2012) found that even though this sample of juveniles reported a high level of criminal behavior, juveniles reduce their offending as they mature into early adulthood regardless if they are incarcerated, diverted, placed in community corrections, etc. The results indicated that juveniles placed on community probation and those placed in confinement had the same rates of post-placement arrests. Additionally, “analyses of the effects of different lengths of institutional placement showed no reduction in arrest or reported antisocial behavior from longer stays” (Mulvey & Schubert, 2012, p. 418).

Mulder et al. (2011) also focused their research on risk factors from a sample of 728 serious juvenile offenders using the measurement instrument, the Juvenile Forensic Profile. This tool consists of an assessment of 70 risk factors. The sample for the study originated with male juveniles adjudicated and committed to confinement in the Netherlands between the ages of 12 to 22 at the time of commitment and most had committed more than one offense with no evidence of specialization. The results of their study found a rate of overall recidivism rate of 79.9% with 62.9% committing violent offenses after treatment. Mulder et al. (2011) identified several significantly high static risk factors such as “age at time of offense, unknown victim of past offenses, and poor parenting skills during childhood” (p. 124). The number of past offenses was the highest negative relationship with recidivism. Among the dynamic risk factors most prevalent were criminal peer association, increase number of behavioral incidents during placement, lack of treatment compliance, and positive coping skills. Consequently, the results also indicated less prevalent factors associated with recidivism such as any symptoms of depression or psychosis, alcohol and substance addiction, or gambling.

Environmental factors are another contextual aspect that can predict offending. Grunwald et al. (2010) studied environmental factors on recidivism from a sample of serious male offenders committed to community-based corrections in Philadelphia. The results of the study found that socio-economic factors predicted juvenile recidivism for drug offending, but that any disadvantages identified in the community did not impact recidivism for violent juvenile behavior. This result was not expected according to the prior research Grunwald et al. (2010) reported in their review. Grunwald et al. (2010) also found that juveniles are not likely to specialize in any one offense with exception of

drug offenses. Juveniles with a drug-related offense are more likely to reoffend with another drug related crime.

Mincey et al. (2008) assessed “risk factors that contributed to recidivism” (p. 12) by conducting a qualitative study on juveniles released from residential placement in Miami, Florida. Their study questioned the participants on their views of success after placement and the effectiveness of the facilities at rehabilitation. Mincey et al. (2008) found that recidivism could be reduced by a strong family bond, dedication to education, supportive families, positive goal outlook, and applying the skills taught during placement. Juveniles equated their success following confinement to refraining from negative peer relationships and to the caliber of the staff within the facility. They also stated that the more supportive and skillful the staff, the higher the rate of success (Mincey et al., 2008). There were also factors linked to failure that were reported such as self-imposed limitations, the community dynamics, peer relations, school, and poverty. Mincey et al. (2008) also reported that many of the participants said that the facilities’ staff played a vital role in an offenders’ success or failure by their level of compassion, training, and sensitivity.

The results of the effectiveness of contextual risk factors and incarceration on juvenile offending resulted in mixed conclusions. Grunwald et al. (2010) concluded that the risk factor, offense history, was the strongest predictor of recidivism for serious juvenile offenders. Mulder et al. (2011) determined that although the recidivism rate for serious juvenile offenders was high, it was not higher than other less serious juvenile offenders on parole or incarcerated. According to Mulvey and Schubert (2012), the results of their study on the same population of offenders, showed that juveniles with the

lowest level of offending reported more criminal behavior following confinement and they concluded that incarceration is not the most effective or suitable option for delinquent juveniles, even the most serious offenders. Mincey et al.'s (2008) research found more promising results toward reducing offending. They concluded that positive contextual factors that support constructive behavior can reduce the risk at recidivism following incarceration (Mincey et al. (2008).

### **Gender Differences and the Effectiveness of Incarceration on Juvenile Offending**

Many, if not most, articles in this literature review begin with a statement about the concern over serious juvenile offending and ways to reduce recidivism, but not many distinguish between males and females, even less focus exclusively on female offending. One such study on recidivism rates of juveniles included limited information on gender. Mallet, Fukushima, Stoddard-Dare, and Quinn (2013) studied the results of juvenile recidivism by focusing on two populations of juvenile offenders following a stay in a detention facility, one from a rural area and one from an urban one. They studied the predictive validity among a number of variables on the effects of juvenile recidivism including mental health, education, substance abuse and demographics. Mallet et al. (2013) included the offending differences between males and females, but just marginally. The results of the study indicated that juveniles most likely to recidivate had a diagnoses of a conduct disorder, were older, had an increased number of court offenses, and had self-reports of suicides (Mallet et al., 2013). Mallet et al. (2013) found that as many as 80% of juveniles with a mental disorder do not receive treatment during incarceration. According to Mallet et al. (2013), as the age of the youth increased, the youths were 1.3 times more likely to recidivate and as the number of prior offenses

increased, the youth were 1.5 times more likely to recidivate. Mallet et al. (2013) also found that males are more likely than females to recidivate following detention.

Most government data sources and government reports generated from collected data include gender differences. The report discussed above under the heading of growth in sentencing, Hockenberry and Puzanchera (2014), found that the number of females committing crimes is continuing to increase compared to males and “the average annual growth in the female caseload [in juvenile court] outpaced that for males for all offense categories between 1985 and 2011” (p. 12).

The search for relevant articles did result in one study by Trulson, Marquart, Mullings, and Caeti (2005) who conducted a 5-year study on 2,436 chronic, serious, and violent juvenile offenders from a population of male and female juveniles released from state incarceration. They reported that males tend to offend more than females but that the crime rate for females is rising at a faster rate than for males. According to Trulson et al. (2005), as of the date of their study, there was a limited amount of research on the relationship between incarcerated juvenile offenders and the rate of recidivism and especially on female offenders. “To our knowledge...there has not been any examination of offending patterns of females” (Trulson et al., 2005, p. 360) after incarceration. This research reported on the need for such studies in order to better understand the causes and therefore, prevent future offending (Trulson et al., 2005). Paroled males accounted for 94% and paroled females for 6% of the sample during the years 1997 and 1998 from a southwestern correctional state facility (Trulson et al., 2005). The sample of offenders was described as high-rate and serious offenders. The data on recidivism rates were obtained from the state’s juvenile correctional system and the Department of Public



Safety. Trulson et al. (2005) found that 87% of males and 61% of females were rearrested and 85% of all offenses were felonies. As a result of the data statistics, Trulson et al. (2005) concluded that these types of juvenile offenders placed in a correctional facility are expected to recidivate following release.

Blackburn, Mullings, Marquart, and Trulson (2007) also focused on a sample of violent juveniles institutionalized in a specific state, Texas. Blackburn et al. (2007) studied the effectiveness of gender and self-reported behaviors such as gang membership, violent behavior and maltreatment on recidivism rates of juveniles. Their research strived to identify the factors most predictive of recidivism for the juveniles that they stated were at the highest risk at adult offending and, therefore, adult imprisonment. Blackburn et al. (2007) reported that females have committed more violent offenses than incarcerated males even though females only constitute a small portion of all violent offenders. The other variables included in the study such as gang membership, alcohol and substance abuse, physical abuse, and stressful events were significantly related to violent offending. Mental health issues were also found to be a strong indicator of violent behaviors. All of these factors led Blackburn et al. (2007) to conclude that indicators, especially mental health, can increase the juvenile's risk at recidivism especially if the juvenile offender is left undiagnosed and untreated.

### **The Systematic Review**

A good systematic review is an empirically structured research technique that documents each step of the process by synthesizing findings from multiple studies (Bachman & Schutt, 2014; Lipsey & Wilson, 2001). This type of research is “an evidence-based review [that] seeks to comprehensively cover the field in order to find the

best form of intervention” (Adolphus, n.d. para. 4), and, in the case of this current study, that intervention is incarceration. A systematic review was described by Fieden (2010) as offering “a model for summarizing and critiquing the literature to improve future practice and possibly encourage higher levels of research methods. A systematic literature review of 30 years should reveal evidence toward a maturing research methodology” (p. 386). According to Crombie and Davies (2009), the focal point for a good methodology in a meta-analysis is the systematic review. Moreover, they reported that a researcher must proceed carefully and diligently to locate as many relevant published and unpublished studies in order to identify the design quality and the way that each study is implemented. One of the main purposes of a systematic review is to avoid bias from the researcher by conducting a review of all literature and not just studies familiar to the researcher (Adolphus, n.d.). The quality of the systematic review can dictate the value of the results from the meta-analysis.

Any meta-analysis faces the risk of providing a quantitative estimate of the effect size that is wrong if the systematic review is anyway incomplete or flawed (Crombie & Davies, 2009). The methods for locating, synthesizing and appraising studies utilized in systematic reviews are rigorous (Holloway, Bennett, & Farrington, 2005). According to research the easy part of the meta-analysis is the plan or proposal with the actual execution of the systematic review of studies for inclusion as the difficult portion (Crombie & Davies, 2009; Lipsey & Wilson, 2001).

The Campbell Collaboration (n.d.) reported that the procedures for a systematic review must be “explicitly defined in advance, in order to ensure that the exercise is transparent and can be replicated” (para. 1). This procedure is intended to minimize bias. Studies reviewed for inclusions in the systematic review must meet the quality of the

inclusion criteria so that the results from a large number of studies can be combined (Campbell Collaboration, n.d.). The use of a checklist can improve the quality of the review to limit the weaknesses and the threats to validity.

Due to the explosion of the internet and electronic media access, the number of articles and journals published every year is astronomical resulting in a nearly impossible task of remaining current with primary research (Hemingway & Brereton, 2009). Policy makers, court officials, and researchers require quality information on the effectiveness and appropriateness of effective interventions for juvenile offending and the amount of available research can overwhelm any professional. These weaknesses in narrative reviews could result in a false conclusion if relevant and significant research is overlooked or excluded (Hemingway & Brereton, 2009). A systematic review includes a rigorous review of secondary research in the same way that is expected from primary research and eliminates the prior weaknesses. According to Lipsey and Wilson (2001), the synthesizing of quantitative research began in 1904 with a correlation study of five separate trials on mortality and typhoid fever by Karl Pearson. This empirical study design has not been used solely and routinely on criminal justice studies, but has remained predominate in the health field. The systematic review technique requires an enormous amount of hands-on time and requires intense, detailed effort.

### **Quantitative Narrative Review**

According to research, there are two main methods used in a literature review, the quantitative narrative review and the systematic review (Holloway et al., 2005; Lipsey & Wilson, 2001). In a quantitative narrative review, the numerical results of the included studies are summarized comprising the quantitative analysis and based “mainly on the

percentage changes in outcome measure reported in the study publication” (Holloway et al., 2005, p. 20). A systematic review usually includes a meta-analysis that is based mainly on extracting the raw data from studies, coding that data and recalculating the data; this procedure is much more time consuming and laborious than a traditional review. The quantitative narrative review is a narrative description of the results and interprets and presents the results in a descriptive form (Holloway et al., 2005). The systematic review requires raw data whereas the quantitative narrative review only requires studies to publish a summary of the numerical results. This allows for more studies to be included within the review. A systematic review followed by a meta-analysis requires specific criteria that limits the number of studies accepted for analysis.

### **The Meta-Analysis**

**History of Meta-Analysis.** According to Lipsey and Wilson (2001), the modern use of the meta-analysis technique began with three applications studying psychotherapy by Glass in 1976, interpersonal expectancy effects in 1978 by Rosenthal and Rubin, and the validity coefficients for employment testing by Schmidt and Hunter in 1977. Lipsey and Wilson (2001) defined meta-analysis as a “form of survey research in which research reports, rather than people, are surveyed” (p. 1), and instead of interviewing people, the actual studies are interviewed. Meta-analysis is also defined as “[A] quantitative method for identifying patterns in findings across multiple studies of the same research question” (Cooper & Hedges as cited in Bachman & Schutt, 2014, p. 360). The meta-analysis technique requires an enormous amount of hands-on time and requires intense, detailed effort.

Lipsey and Wilson (2001) found that meta-analysis can only be used on empirically based studies that produce quantitative results, and it is “for encoding and analyzing the statistics that summarize research findings as they are typically presented in research reports” (p. 2). In order to compare individual research studies, the studies identified in the sample must deal with the same concepts and variable relationships, and the statistical measures must be configured in a similar fashion. All of the studies in a systematic review must focus on the same topic or treatment. In the case of this dissertation, that focus was juvenile offending and incarceration, whereas the intervention or treatment group is the incarceration sanction and the control group or comparison group is the other sanction compared to incarceration.

The comparable research designs from each study included in a meta-analysis were represented in the form of effect sizes (Lipsey & Wilson, 2001). According to Lipsey and Wilson (2001), an effect size “is a statistic that encodes the critical quantitative information from each relevant study finding” (p. 3). There are a number of effect size statistics and the researcher can determine what statistic is best for her study but it is crucial that the researcher define her domain of interest and the reasoning behind determining which articles to include and which ones to exclude from the study (Lipsey & Wilson, 2001).

As mentioned above, the preparation time and work for meta-analysis can be labor intensive beginning with locating the studies for the synthesis and coding different forms of quantitative findings based on the model of standardization. Essentially, “the effect size statistic produces a statistical standardization of the study findings such that the resulting numerical values are interpretable in a consistent fashion across all the

variables and measures involved” (Lipsey & Wilson, 2001, p. 4). The definition of the effect size is the focal point of any meta-analysis.

**Strengths of a Meta-Analysis.** Most research in criminal justice and criminology relies on the traditional narrative type of review and, according to Pratt (2010), studies are broadly described and not given the importance according to each finding and study results. More conventional review processes like “vote-counting” and qualitative reviews do not use methods as sophisticated as meta-analyses (Lipsey & Wilson, 2001). Less strenuous and more traditional review processes use approaches such as “vote-counting” (Lipsey & Wilson, 2001; Pratt, 2010). The “vote-counting” method basically counts the number of studies that have a positive effect, a negative effect or no effect on the outcome (Jonson, 2010). This type of review is qualitatively based and relies on the researcher and their observations and may not follow a protocol based on peer-review (Hemingway & Brereton, 2009). Neither method measures the magnitude of the effect sizes or weighs the studies according to their sample sizes (Jonson, 2010; Lipsey & Wilson, 2001). Bias could result due to conflicting interpretations of the same result. There are both strengths and weaknesses to the meta-analysis, but researchers agree on four basic reasons to use this method (Durlak & Lipsey, 1991; Lipsey & Wilson, 2001; Pratt, 2001, 2002).

**Summary of research findings:** The first reason to use a systematic review approach and meta-analysis is the ability to offer a summary of current research findings. The steps needed for a good meta-analysis must be open to review and scrutiny by other researchers and practitioners to allow for an organized and explicit forum for the summary of the research under review (Lipsey & Wilson, 2001). According to Crombie

and Davies (2009), the meta-analysis makes it easier to make sense of the effective research by presenting a helpful and rational way to handle the difficulties that could arise through such a detailed review. Lipsey and Wilson (2001) stated one strength of a meta-analysis lies in the results with finding relationships and summaries that an individual study may not accomplish. In addition, a meta-analysis offers an organized format to handle and review large amounts of review findings into one synthesized study. Individual studies and even meta-analyses focused on new research can neglect an important aspect of research and analyzing large amounts of studies can be a formidable task.

***Replication.*** Another reason to use a systematic review and meta-analysis is the method allows for the study and the results to be replicated by other criminologists and researchers (Durlak & Lipsey, 1991; Hunt, 1997; Lipsey & Wilson, 2001; Pratt, 2001, 2002). Plato (n.d.) said that that an expert does not want to do any better than another expert, but wants to do equally well in order to validate the expertise and findings. A good review and analysis should report in detail how the studies used in the analysis are categorized and coded making replication possible (Jonson, 2010).

***Assessing large number of studies.*** As mentioned above analyzing and assessing a large number of studies can be time consuming and a challenging and difficult task but well worth the time. According to Hunt (1997), the studies included in a meta-analysis are viewed as individual cases in a larger sample allowing for amalgamating countless number of studies into one analysis. This procedure allows for a true synthesis of the available empirically based research and the use of computers for coding and analysis increases the number of studies that can be included (Lipsey & Wilson, 2001).

*The estimated effect:* The fourth reason, and possibly the most significant, is that the meta-analysis is able to find relationships among variables that other more traditional methods cannot. Not only can the significance of the relationship be found using meta-analysis, but also the strength or magnitude of the relationship (Lipsey & Wilson, 2001). The larger studies are given greater weight allowing for even distribution of effect. Meta-analyses allow for the effect size of each study to be compared with other studies that increases the statistical power compared to results from individual studies. The effect size is used to find a more precise relationship between the findings and more meaningful relationships that could not be discovered using a less analytic approach (Lipsey & Wilson, 2001).

**Weaknesses of a Meta-Analysis.** The systematic review and meta-analysis design can be the focus of harsh reviews by certain critics. The three mentioned in literature are the time and effort this project requires, possible publication bias and the “apples and oranges” of the research (Crombie & Davies, 2009; Pratt, 2002; Lipsey & Wilson, 2001).

*Time and effort.* The most common weakness identified by researchers and discussed here is the time, effort and work that a meta-analysis requires (Bachman & Schutt, 2014; Crombie & Davies, 2009; Lipsey & Wilson, 2001). The coding that is required for a meta-analysis can be tedious and requires the researcher to be sensitive to the issues (Lipsey & Wilson, 2001). Bachman and Schutt (2014) reported on some challenges facing the meta-analyst and stated that the articles used in a meta-analysis may not always include sufficient information on the studies or on the data used by the



individual study's researcher. For instance, the researcher may omit certain variables that could prove to be important to the study. According to Lipsey and Wilson (2001), the main concern for a meta-analysis is the combination of different studies, but the threat to losing the meaningfulness of the study can be lessened by focusing on the same variables.

**Publication bias.** Another weakness identified by researchers is the problem of publication bias, also referred to as the "file drawer" problem, by excluding studies that did not show any statistical significance or excluding non-published studies (Crombie & Davies, 2009; Jonson, 2010; Lipsey & Wilson, 2001; Pratt, 2002). If only published articles and studies resulting in significance are used in a meta-analysis, then it is possible to exclude relevant studies causing a drastically different result if non-published studies and studies indicating null findings were included (Jonson, 2010; Lipsey & Wilson, 2001; Pratt, 2002). This weakness can be overcome by conducting a rigorous systematic review that presents an unbiased synthesis of all empirical data located regardless of the statistical significance (Crombie & Davies, 2009). Pratt (2002) reported that using the "Fail Safe N" statistic can also overcome the consequences of this weakness and adds a degree of methodological advantage to meta-analyses. According to Wolf (1986), the "Fail Safe N" represents "the number of additional studies in a meta-analysis that would be necessary to reverse the overall probability obtained from our combined test to a value higher than our critical value for statistical significance, usually .05 or .01" (p. 38). Another way to reduce this problem is contacting renowned researchers and respected criminal justice publishers requesting unpublished studies and information on unpublished studies or papers.

**Mix of studies:** Critics argue that combining different studies with

incommensurable findings into one meta-analysis, also known as the “apples and oranges” problem, is another weakness of the meta-analysis (Lipsey & Wilson, 2001; Pratt, 2001, 2002). It would be meaningless to construct the effect size of studies with no similarities or different dependent and independent variables, like comparing studies on juvenile offending and the impact of education on career placement. In contrast, according to Lipsey and Wilson (2001), a study that replicates any other study would be accepted by critics of meta-analyses as long as the study is truly a replication and not just claim to be. Although this is a valid point, there are solutions to this problem. Lipsey and Wilson (2001) reported on the technical advances in meta-analysis that allow testing for variance in effect size of distributions as opposed to the means of the distribution. This would provide identification of “the sources of differences in study findings, rather than aggregating results together into a grand average” (Lipsey & Wilson, 2001, p. 9).

Mixing a wide range of studies is not the only troublesome area identified by opponents of meta-analysis, but combining studies with different methodological characteristics can be misleading and lead to flawed analysis (Jonson, 2010; Lipsey & Wilson, 2001). Critics of meta-analysis contend that is not appropriate to include both experimental and quasi-experimental studies in the meta-analysis. In the same context, according to Lipsey and Wilson (2001), not only do researchers view what constitutes methodological quality differently but also agree that a perfect study is relatively non-existent. Jonson (2010) found that researchers “are arguing that by using meta-analysis, researchers are attempting to combine studies of varying quality together to come to a definitive conclusion” (p. 79). Moreover, according to Jonson (2010), critics claim that a meta-analysis must exclude studies with an inferior

methodology but that is not always necessary. Whether or not to include studies deemed flawed can be resolved by the meta-analyst conducting a rigorous study of research for inclusion and code the studies with methodical factors that can separate the weak studies from the strong (Pratt, 2002; Lipsey & Wilson, 2001).

There are two approaches identified by research to solve the issue of mixing studies that have been mentioned above (Jonson, 2010; Lipsey & Wilson, 2001). The researcher can synthesize studies based on the “best” evidence by imposing strict guidelines and criteria for inclusion in the review and analysis. The second approach presented by Lipsey and Wilson (2001) involves a less stringent criterion for the methodology by treating “methodological variation among studies as an empirical matter” (p. 9) and coding any characteristic that might influence the results. After the relationship of the practice and the findings is determined, the researcher at that time can decide to either include or exclude the study.

### **Literature Review Conclusion**

The Office of Juvenile Justice and Delinquency Prevention (OJJDP) (n.d.), as a part of the United States Department of Justice, maintains a guide of model programs that is accessible to administrators, policy makers, practitioners, and the public in order to compare programs on type of services provided and the outcomes of success. The guide “contains information about evidence-based juvenile justice and youth prevention, intervention, and reentry programs” (OJJDP, n.d., para. 1) and allows criminal justice practitioners and administrators to search through the index of programs for comparisons and program information. The guide uses expert reviews to evaluate and report on all the programs included in the index. The programs are categorized according to level of

supervision and services provided. Of the 24 programs included under the heading Detention, Incarceration and Supervision, the top six receiving a review of effective were all community-based programs (OJJDP, n.d.). There were no effective sanctions listed that included incarceration. This research on the effectiveness of incarceration and confinement decreases the gap in missing outcomes.

The results from the studies included in this literature review demonstrate a relationship between juvenile incarceration and recidivism. As this literature review shows, there are numerous reports, articles, and studies showing that confinement for juvenile offenders is not beneficial or a deterrent at reducing future offending behaviors. This review indicates that the “get tough” policies of the judicial system do not impact juvenile offending and as indicated by the many studies discussed in this analytic review, confinement in a secure facility does not deter future criminal behavior (Hartjen, 2008; Fagan, 2010; Jolivette Leone, Mathur & Nelson, 2010; Mears et al., 2011). This dissertation expands upon the studies on the effects of incarceration on juvenile offending.

The analysis also indicates a lack of research available that uses meta-analysis methods on studies establishing a relationship between juvenile recidivism rates and juvenile incarceration. Importantly, during the time period since the last located systematic review and meta-analysis on violent juveniles, (Lipsey & Wilson, 1998), all types of juvenile offending has declined including violent offending; however, incarceration is still used as a sanction for juveniles (Pew Center on the States, 2009; Sickmund & Puzzanchera, 2014). Additionally, there has been an increase in the number of juveniles in adult incarceration that consequently, increases the overall number

incarcerated (Mauer & Epstein, 2012; Sickmund & Puzzanchera, 2014). Chapter 3 describes the method for this study that makes a significant contribution to the research and literature on the effectiveness of incarceration on juvenile recidivism by focusing on a topic that has received little analytical attention. de Vries et al. (2015) supports the need for further research that this dissertation serves, with its contribution to the gap in research and the recommendations to increasing programming concentrated at reducing serious juvenile crime.

Although prior research findings do agree that incarceration does not reduce reoffending by juveniles, research indicates little agreement on what works to reduce juvenile offending and control crime, possibly due to the inadequacies of using single studies as the basis for that assumption. A systematic review on what works to reduce recidivism analyzes many studies together, showing the magnitude of any statistical relationship. This study closes that gap in juvenile justice research by adding credibility to the current studies, expanding on the research and allowing other researchers the opportunity to replicate and validate these findings.

### **Research Questions**

The objective of this rigorous systematic review and meta-analysis was to synthesize the extant empirical evidence, unpublished and published, on what works in the criminal justice system to reduce juvenile recidivism. The following research questions were derived from the literature synthesis and the background of the problem that the criminal justice system is facing on recidivism rates of juvenile offenders. Hypothesis testing is not recommended in meta-analyses. Check lists for conducting a

systematic review and meta-analysis do not include hypothesis testing and experts on meta-analyses do not include hypothesis testing (Jonson, 2010; Lipsey & Wilson, 2001) in their literature. Gendreau and Smith (2007) “suggest abandoning null-hypothesis significance testing (NHST;  $p < .05$ ), for only then will it become easier to make sense of the data” (p. 1538) for meta-analyses.

RQ1: Is a juvenile offender less likely to reoffend if given a sanction of incarceration?

RQ2: Is a juvenile offender less likely to reoffend if given an alternate sanction from incarceration?

RQ3: What are the differences, if any, in recidivism rates according to length of time in placement for juveniles after incarceration and after other sanctions?

RQ4: Do the “get tough” policies work as a deterrent to juvenile reoffending?

### CHAPTER 3: METHODOLOGY

This dissertation focuses primarily on conducting a rigorous systematic review to demonstrate a relationship between recidivism and incarceration for juvenile offenders by synthesizing the current research. The knowledge of whether or not incarceration for juvenile behavior prevents recidivism gives policy makers, law enforcement officers, and court officials the power to restructure the juvenile justice system in order to maintain public safety and protect juveniles as was originally intended with the philosophy of *parens patriae*. In addition, the goal of this research was to identify the studies that compared incarceration with other sanctions to allow a comprehensive cohesion of all research to answer the question of whether or not incarcerating the juvenile offender as a result of the “get tough” policies of the judicial system is a deterrent to future offending.

#### **Complications Facing the Meta-Analyst**

**Effect Models and Homogeneity.** When conducting a meta-analysis and systematic review, a number of concerns and obstacles must be addressed. In order to calculate a valid mean effect size, the same effect size statistic must be used on every study in the meta-analysis. If studies cannot be converted using the same statistics, studies might have to be excluded, reducing a small amount of effect sizes even smaller. The researcher must also choose the correct model for the meta-analysis. According to Lipsey and Wilson (2001), choosing the incorrect model could result in inaccurate results. The two most common models are the fixed effects model and the random

effects model. The fixed effects model is the most common model and is commonly used by default and possibly in error. The model used should depend on the results of testing for homogeneity with the  $Q$ -test. A significant  $Q$  means the null hypothesis of homogeneity is rejected and indicates that a greater variability among the effect sizes exists as a product of more than subject-level sampling error alone (Lipsey & Wilson, 2001). At this point, the researcher can hypothesize that the excess variability is not random and continue with the fixed effects model, assuming that the variability is a result of the moderating variables. Additional analyses are needed. An alternative method involving less time that eliminates possible error and assumes the variability is random, is the random effects model (Lipsey & Wilson, 2001). In order to prevent incorrect assumptions, Lipsey and Wilson (2001) and Wilson (during a training sponsored by the Campbell Collaboration, 2011a) suggest beginning with the random effects model.

**Statistical Independence of the Effect Sizes.** Another complication the meta-analyst may encounter is the statistical independence of the effect sizes. According to Lipsey and Wilson (2001), only one effect size per conceptual relationship in any given study should be included in one analysis. If more than one effect size can be calculated, the researcher can elect to exclude all by one or average the effect sizes together. Both of these approaches can result in omitting valuable information. Gleser and Olkin (as cited in Lipsey & Wilson, 2001) developed a formula that can rectify this potential error but more information is need such as the covariance between dependent effect sizes. According to Lipsey and Wilson (2001) this procedure is out of the realm of the average analyst and should be tackled by the more advanced meta-analyst with a high degree of statistic sophistication.



**Publication Bias.** As discussed in Chapter 2 under the weaknesses of the meta-analysis, publication bias can complicate the meta-analytic procedure for the researcher and increase the chance that relevant studies were missed, not available or not published. This possible deficit is handled by running an analysis using the *fail-safe N* statistic, discussed later in this chapter. The *fail-safe N* statistic is used to test for the possibility that relevant studies, especially unpublished studies, are omitted in the meta-analysis. It requires knowledge of certain data that may not be available through the reported research of individual studies.

**Differences in Sample Sizes.** Another reason that the meta-analysis should exhaust all research techniques and resources for relevant studies leads to smaller sample sizes in unpublished studies versus published studies that cause concern for the meta-analysis. Effect sizes computed from large samples should not be treated equally to those computed from small samples and should have more weight towards the results. The meta-analyst must weigh the samples appropriately resulting in weighted analysis used in all meta-analyses but in order to complete this analysis, the variance of each sample is needed. To compute the variance, the standard error for each effect size is needed, and in order to compute the standard error (SE), the standard deviation (SD) is needed. (The SE is the SD divided by the sample size). This procedure can be difficult since not all studies include all of the data needed to compute not only the standard deviation but also other analyses, as explained above.

**Moderating Variables.** A number of variables such as study characteristics, methodological quality, gender, race, age, socio-economic status, prior convictions, prior arrests, and education can add value to any study, especially one on juveniles. An advantage to conducting the meta-analysis, as discussed in Chapter 2, is that these moderating variables can be included to determine how other factors could influence the outcome. Conducting analysis using moderating variables can be complicated by missing data and unreported results. Not all studies report the demographic characteristics listed here or contextual factors.

**The Mean Effect Size.** When dealing with studies conducted by different researchers, funded by different agencies, with a different focus and studies that use different statistical analysis, finding any similarities can be challenging. This is especially true for the main statistical component of any meta-analysis, the mean effect size. The mean effect size is calculated from the individual effect sizes (ES) calculated from each study. Multiple ESs from one study are possible when independent sampling occurs within an independent study; however, they must be calculated separately and treated as individual studies. Additionally, there are multiple statistical formulations that can be used to calculate the ES but the same ES statistic must be used to compute the ESs and the mean effect size (Lipsey & Wilson, 2001). The results would be meaningless if multiple statistics were used and not converted to the same value. Sometimes the statistical formulation of individual ESs result in extreme values or outliers leading to a mean effect size that is not representative of the true outcome (Lipsey & Wilson, 2001). The meta-analyst must examine the distribution of ES for any outliers, and if the ESs are

more than three standard deviations from the mean, the analyst is then faced with deciding whether or not to exclude those results or use a procedure called Winsorizing. This procedure entails recoding the ESs according to a standard deviation of 2 or 3. Other procedures are available that involve recoding according to the sample sizes and any breaks in the distribution and a more precise procedure where the effect size is recoded closer to the largest group of effect sizes (Lipsey & Wilson, 2001).

**Coding and Interpretation.** The last complication faced by any meta-analyst is the data analysis and interpretation. In order to have results that are meaningful and reliable, all data and information must be coded in the statistical software accurately. If incorrect information is coded, then the meta-analyst is faced with inaccurate results. The resulting data for a meta-analysis are not like data from an individual study and if the meta-analyst assumes that error, the results would be inaccurate and unrepresentative of the problem. Data interpretation can drastically impact any study. A goal of any research allows replication by other researchers and this is especially true with the meta-analytic approach.

### **Current Research Design for the Study**

An initial review of literature using the databases listed below assessed the number and quality of prior reviews and confirmed that no similar systematic reviews or meta-analysis focusing specifically on incarceration as the outcome variable have been conducted. In addition, a systematic review and meta-analysis as the sole focus for any dissertation on the effectiveness of juvenile incarceration on juvenile offending has not been conducted. Numerous protocols for reviewing systematic reviews and meta-analyses exist, but the ones used for this dissertation were designed by The PRISMA Group

([www.prisma-statement.org](http://www.prisma-statement.org)), the Campbell Collaboration

([www.campbellcollaboration.org](http://www.campbellcollaboration.org)), and the Cochran Collaboration

([http://www.ebbp.org/course\\_outlines/systematic\\_review/#7](http://www.ebbp.org/course_outlines/systematic_review/#7)).

A quality systematic review and meta-analysis worthy of publication and peer respect requires following certain steps and procedures. The use of a checklist also improves the quality of the study to limit the weaknesses and the threats to validity. According to Hemingway and Brereton (2009), the five steps shown in Table 2 are essential for the first portion of this study:

Table 2  
*Steps for a Systematic Review and Meta-Analysis*

| Steps  | Description   |
|--|---|
| 1. Defining an appropriate research question | Clear statement of objectives, intervention, types of studies to help answer the question |
| 2. Searching the literature                  | Search both published and unpublished studies for those relating to the intervention      |
| 3. Assessing the studies                     | Assessing for eligibility, methodological quality, framework and form of data extraction  |
| 4. Combining the results-Evidence Synthesis  | Finding need to be aggregated to show effectiveness and appropriateness of intervention   |
| 5. Place the findings in context             | Discuss the aggregation of studies on quality, heterogeneity, bias impact and application |

A checklist and the previous steps were followed for this intense review. The checklist is included in Appendix A and originated with The PRISMA Group (Moher,

Liberati, Tetzlaff, & Altman, 2009). Studies for this meta-analysis on juvenile incarceration were collected by conducting searches using the databases listed below. The local academic library and local university academic libraries were also used to locate relevant research. Searches were conducted throughout the study process. The search included using the following keywords: “juvenil\*” “juveni\*” “adolescent” “incarcerat\*” “prison” “detention” “recidivi\*” “experimen\*” “youth” “offending” “criminal” “institution” “sentence\*” “interventi\*” “experime\*” “control” and “random\*”.

Other studies were identified by using the reference sections of selected studies as well as studies that did not meet the inclusion criteria. If a study was eliminated, the references sections were retained and reviewed. In addition, respected professionals in the field were contacted and a few unpublished studies were located. The search for studies continued even after coding began. Databases were continually searched until all coding was completed and the data-analysis began. In addition, many of the databases send notifications via email of new studies that meet search criteria through saved keywords. Notifications were received weekly, and all notifications that were received were reviewed for inclusion criteria.

The following bibliographic databases were used to search for studies:

- Academic One File
- Academic Search Premier
- American Society of Criminology (ASC) Journal "Criminology"(abstracts)
- American Society of Criminology (ASC) Journal "Criminology and Public Policy" (abstracts)
- Behavioral Sciences and the Law (abstracts)
- Canadian Journal of Criminology and Criminal Justice (abstracts) 1997-current
- Canadian Journal of Program Evaluation
- Center for Sex Offender Management (USO) documents database
- Cochrane CENTRAL (via University of Pennsylvania Library)
- Criminal Justice Abstracts

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- Educational Resources Information Center (ERIC) database
- Gale Virtual Reference Library
- General One File
- Google Scholar
- Harvard Family Research Project database of "afterschool program" evaluations
- HeinOnline
- Human Services Research Institute (HRSI) publications catalog
- Illinois Criminal Justice Information Authority reports
- International Centre for Crime Prevention publications (Montreal)
- International Bibliography of the Social Sciences
- Jstor
- Journal of Experimental Criminology (abstracts)
- LexisNexis
- National Criminal Justice Reference Service (NCJRS) database
- National Clearinghouse on Child Abuse and Neglect
- NCJRS (National Criminal Justice Reference Service)
- Political Sciences Abstracts
- PQDT Open
- ProQuest
- ProQuest Criminal Justice
- ProQuest Central
- ProQuest UMI Dissertations and Theses Worldwide
- PsychINFO
- Rutgers University Don M. Gottfredson Library of Criminal Justice Gray Literature Database
- Sage Journals Online
- Sage Premier Online
- Social Sciences Citation Index
- Sociofile (Sociological Abstracts and Social Planning and Development Abstracts)
- Springer
- VioLit - Center for the Study and Prevention of Violence
- Washington State Institute for Public Policy-crime citations
- World Cat

In addition to the databases above for published work, ray literature, or unpublished studies, were searched using the following search engines found through professional

contacts. When searching these sites, less keywords were used in order to enhance the results. The keywords “juveni\*” and “recidivi\*” were the only two used.

Unpublished Studies or Gray Literature Searches:

- Cochran Central Register of Controlled Trials
- Cochran Database of Systematic Reviews
- Cochran Methodology Registry
- CrimDoc (Criminology Library Grey Literature)
- GreyNet International
- NYU Libraries
- OpenGray
- Rutgers University Don M. Gottfredson Library of Criminal Justice Gray Literature Database
- WorldCat
  - Papers First
  - Proceedings
  - WorldCat Dissertations

**Expert Contact.** National experts in the field of juvenile recidivism and effective sanctions to reduce offending were contacted to locate and discuss any unpublished works and papers in process. This analyst spoke directly to authors of relevant studies and professional researchers with governmental agencies to locate unpublished studies, working papers, studies under review and additional sources. As a result, additional papers were located and included in the search and if they met the criteria discussed below for inclusion, they were included in the meta-analysis. Library experts and university librarians were also contacted to ensure that the literature search was reaching as many databases as possible and to ensure that relevant studies were not overlooked due to inadequate search procedures.

### **Search Strategy for Identification of Studies**

A search strategy was conducted in order to minimize the potential for publication bias to identify both unpublished and published studies. This researcher did not want to erroneously exclude studies that were not published due to not rejecting the null hypothesis and only locate those studies published that did reject the null. The search was comprehensive and included databases from multiple disciplines and not just criminal justice journals. The search included the disciplines of social service, public health, educational, psychological and sociological as well as criminological journals. The search for studies began with searches of databases and references. This researcher also worked with librarians from Nova University and King University (employer). Both universities offered telephone assistance, tutorials, email assistance, and instant chat. As a result of the communication, keywords and search techniques were modified to ensure the most accurate results possible. Keywords were added and removed in order to increase search results. All results were reviewed either by the abstract or entire article. References were also reviewed for additional studies.

Each search in the databases utilized the same strategy as listed here. As a dissertation student of Nova Southeastern University (Nova), this researcher had full access to the electronic databases located on the Nova Sharklink web page ([https://sharklink.nova.edu/render.userLayoutRootNode.uP?uP\\_root=root](https://sharklink.nova.edu/render.userLayoutRootNode.uP?uP_root=root)) as well as the databases where employed, King University. In order to replicate the exact address, a researcher must have access to the Nova system but most academics have access to a university library database system. The databases located at Nova Alvin Sherman Library are databases readily available to most any faculty member at a university, through a local public library, or access can be purchased for individual use. After



reaching the Nova Alvin Sherman Library home page, the search included the databases by either subject or view all by name. One database that this researcher used quite frequently was ProQuest Central. From the advanced search page under Proquest Central, the following keywords were included: juveni\* or youth and recidivi\* and incarcerat\* or confinement\* or prison or detention\* or institution\* or boot camp. The location of these keywords were searched in “anywhere.” In order to limit the number of search results, this researcher chose peer-reviewed and/or academic journal. Searches can also be limited by choosing the range of search in years and also by choosing specific sources such as dissertations, books etc. Through the search process, some key words could be eliminated and used in different order. As a result of the search of the keywords above and choosing peer reviewed and academic journal, in the anywhere location of articles, the following reference was located:

Hjalmarsson, R. (2009). Juvenile jails: A path to the straight and narrow or to hardened criminality? *Journal of Law and Economics*, 52, 779-809.

**Data Extraction.** Through the procedure of meta-analysis, this research expands upon the creditable work of the previous studies on juvenile offending by comparing and reviewing the recidivism rates of incarcerated juvenile offenders with a comparison group as identified in each study. After the studies were rigorously reviewed and carefully read, the appropriate information about the specific characteristics of each study and any quantitative findings were extracted (Lipsey & Wilson, 2001).

More than expected, initially over 3,000 studies were reviewed for inclusion in this analysis through an initial review of the search results of abstracts, titles and keywords. As the search progressed and expert contact occurred, all additional studies located were also reviewed. From the studies initially selected, a more intense review of

methodology and interventions were conducted. Every study accepted for inclusion compared incarceration with any other intervention or diversion. Of the studies selected, a criteria was met that is listed below. The methodology addressed the research questions by gathering studies as current as possible but the search was not restricted by year.

Studies were chosen following an extensive search in order to meet the following criteria:

- The sample included juveniles under the age of 18 at the time of adjudication or disposition who were placed in a secure correctional setting to include, incarceration, residential facilities, and prison (any outcome must include a staff secure and hardware secure facility).
- The study used quantitative results on juvenile recidivism rates following incarceration in order to compare the means of the studies. The outcome variable clearly measured recidivism rates; adjudication was the preferred method but arrests were accepted. The studies for inclusion involved some type of control group to test the effectiveness of incarceration according to the experimental method of design. According to Babcock, Green and Robie (2004) researchers Shadish and Ragsdale stated that “results from randomized experiments are the “gold standard” for meta-analyses” (p. 1027).
- The decision for inclusion in the sample originated with the basis of explicit methodological criteria. The articles were either unpublished or published from peer-reviewed journal articles, dissertations, government agencies or respected researchers. According to Lipsey and Wilson

(2001) excluding “unpublished studies is quite likely to produce an upward bias” (p. 19) on the statistical results.

- The study was reported in the English language.

**Data Analysis.** There are a number of available software programs for data management that are specifically designed for meta-analyses, and other software programs can also calculate meta-analysis statistics with the correct macros added. This study utilized the Statistical Program for Social Sciences (SPSS) and Comprehensive Meta-Analysis (CMA) software. Initially, all data were entered into SPSS because of its common availability and control of the data, but SPSS requires macros for meta-analyses and many require experienced handling; therefore, a program designed specifically for meta-analyses was selected (Lipsey & Wilson, 2001). Descriptive statistics were completed in SPSS; those findings are reported in the results. After the effect sizes were calculated using online effect size calculators, they, too, were coded into SPSS. The variables appropriate for the meta-analysis were then exported to the CMA software. CMA was designed in 2006 specifically for meta-analysis statistics by experts from the United States and United Kingdom and is recommended by the Campbell Collaboration and statistical experts. CMA computes effect sizes after all data are entered as well as computes the mean effect size in very few steps.

**Systematic review.** A systematic review offers insight into the research studies included in the evaluation with the hope that the synthesis of the individual studies will result in a “clearer (and more consistent) picture” (Hemingway & Brereton, 2009, p. 2) of the problem studied and include a detailed strategy worthy of replication. Because the

synthesis is focused on the assessing of studies, a systematic review does not include a population or sample. However, the studies included in the review measured outcomes from a population and as the inclusion criteria indicates, there was a restriction on the type of population covered by the review. Studies researched samples of juveniles under age 18 at the time of adjudication and they were either male, female or both. The population included any ethnic group and all details of the population characteristics are recorded in the results. The criteria for studies included in this analysis was correctly met, resulting in all studies that focused on the recidivism rates of juvenile offenders placed in incarceration facilities and compared to any other sanction. According to M. Sickmund, Director for the Center of Juvenile Justice, the most accurate format to measure recidivism is not through arrest numbers but adjudication (personal communication, July 26, 2015). Adjudication was the preferred measure but as the results show, that was not always possible.

*Methodological quality.* As mentioned above, one advantage of conducting a systematic review and meta-analysis is that the quality of the methods for each study can be coded and its impact on the outcome can be assessed. The purpose of conducting this study on whether or not incarceration reduces juvenile recidivism included a synthesis of the results from individual studies that were located and rigorously reviewed for quality methodologies. After the studies were located and passed the steps for inclusion mentioned above, a more in-depth review occurred. Two independent reviewers assessed the quality of the methodology for each study meeting the inclusion criteria. Each study was evaluated using a critical methodological worksheet (Appendix B) that was designed by this researcher using multiple resources. Those resources included

standardized critical appraisal instruments from the Joanna Briggs Institute Meta-Analysis of Statistics Assessment and Review Instrument (JBI-MAStARI) as well as information by Lipsey and Wilson (2001). Any disagreements that arose between the reviewers was resolved through discussion. The review extracted information about the goal of the study, the choice of study method, the appropriateness of the analysis, attrition, the research questions, and included questions on the rating of initial group similarity, if outcomes were measured in a reliable way and the overall judgement of the study.

Each study in the review was assigned a specific identification number that included the initials of the title and the date of the study. Results of the systematic review are summarized in narrative format and presented in tables (see Chapter 4).

*The meta-analysis.* The population for the meta-analysis was the research studies that were collected for analysis. The population included studies that quantitatively analyzed recidivism rates on juvenile offenders who were incarcerated in a staff secure and hardware secure facility. The sample came from the population and met the criteria indicated in the research design above. The sample included reported findings that were used to calculate effect sizes from each study, that dealt with the same concepts and relationships and were constructed in similar statistical form, for example numerical recidivism rates for juvenile offenders (Lipsey & Wilson, 2001). Studies could include more than one effect size if independent samples were used for the comparison. The articles chosen for the meta-analysis were the participants for this study. The actual sample size of each article is reported in the results along with the weighted result (see Table 5). The sample depended on the articles chosen and the population and sample

numbers of individual articles. According to the criteria for studies included in the analysis, all studies focused on the recidivism rates of juvenile offenders placed in incarceration facilities and any other outcome. The data was extracted from each study using the manual located in Appendix C and extracted data such as sample size, population, type of data analysis, type of sanction, recidivism rates, statistical results, age, gender, sentence length, and other information as found necessary for comparison. Tables indicating the results of descriptive analysis are included in Chapter 4.

*Random and fixed effects models.* As mentioned above, there are two models for use with meta-analyses. If the fixed effects model is chosen by default, erroneous results could occur. This meta-analysis includes a 9 effect sizes and the fixed effects model is not recommended for a small amount of studies. In addition, if the results of testing for homogeneity is statistically significant then the random effects model is warranted. According to experts (Lipsey & Wilson, 2001), the best decision is to begin with the random effects model that assumes heterogeneity and that the treatment effect could be impacted. A random effects model “assumes that the effect size will vary from one study to the next” (Borenstein, Hedges, & Rothstein, 2007, p. 109). According to statisticians with Campbell Collaboration, any meta-analyst should begin with the random effects model (Campbell Collaboration, 2011a, 2011b). This meta-analysis is based on the random effects model and all results were interpreted using that model.

*Independent variables.* The independent variables for this study were the type of sanction ordered by the court for the juvenile offender and were coded as either incarceration that included secure residential placement or other sanctions such as probation, intensive probation, community based sanctions, non-residential, and boot

camps. In addition to coding the type of sanction, the mean length of sentence for each type of sanction, in months, was also coded if available. Only a few studies in this analysis recorded the length of sentence but for those that did, the length was coded to measure the impact on recidivism. Juveniles who served more time were compared to juveniles who served less time.

*Dependent variables.* The dependent variable was the rate of recidivism as measured by the effect sizes. One recidivism outcome variable was selected from each study to avoid issues of statistical dependency (Lipsey & Wilson, 2001). If studies contained multiple effect sizes, then each effect size was treated as an independent study and included in the mean effect size. According to prior research, police arrest or police contact is the most common outcome measured and this study used this measure along with adjudication and conviction.

*Moderating variables.* Not only can meta-analyses analyze results from multiple studies, but another advantage allows variables to be included as moderating variables to determine if the outcome or the dependent variable is influenced by other factors such as demographics. This dissertation examined other variables that were extracted from the studies during the coding using Appendix C and are discussed below.

A large amount of prior studies on juvenile recidivism have shown that demographics can impact recidivism rates (eg: Beck & Shipley, 1989; Cannon & Wilson, 2005; Councell, 2003; Gendreau et al., 1996; Langan & Levin, 2002; Sabol et al., 2000) and an advantage of the meta-analysis makes it possible to include demographic variables in the analysis (Jonson, 2010). The variables that were coded through data extraction included age of the sample, mean age of the sample, gender, race, prior convictions, and

adjudication offense. Also included was the mean number of prior offenses for both the experimental group, the control group and the whole sample. The type of adjudicated offense was also coded if included by the researchers. Not every study included moderating variables.

*Statistical Measures.* The method for statistical measurement to address the research questions focused on calculating effect size estimates from the studies included in the meta-analysis. The effect size statistic was used to code the information collected from the systematic review and the meta-analysis procedure. Effect size is “based on the concept of standardization...such that the resulting numerical values are interpretable in a consistent fashion across all the variables” (Lipsey & Wilson, 2001, p. 4). The effect sizes from all the included studies were averaged together resulting in the mean effect size. The mean effect size is calculated by dividing the sum of each individual weighted effect size by the sum of the inverse of the variance for each weighted result (Lipsey & Wilson, 2002). There are different forms of the effect size statistic, but the ones most widely used are the standardized correlation coefficient  $r$ , logged odds ratio, and measuring the differences between group means (standardized mean difference) (Lipsey & Wilson, 2001). When coding all of the findings from the articles, the same effect size statistic was used across all the studies or meaningful analysis would have been lost. Effect sizes were originally calculated using an effect size calculator available by the Campbell Collaboration. Dr. David Wilson designed an effect size calculator for The Campbell Collaboration ([http://www.campbellcollaboration.org/resources/effect\\_size\\_input.php](http://www.campbellcollaboration.org/resources/effect_size_input.php)). In addition, the effect sizes were calculated in CMA software after the data were exported. This



dissertation used both the standardized mean difference (*Cohen's d*) and the correlation coefficient to calculate the effect sizes for each study. The standardized mean difference can be computed across different studies that used different statistical tests more than any other method. The studies in this review reported varied and limited data that were computed using different methods, so the standardized mean difference method was used then converted to the coefficient  $r$  using the CMA software.

According to Lipsey and Wilson (2001), "the product-moment correlation coefficient is the straightforwardly appropriate effect size statistic" (p. 63) when the findings of the individual studies use bivariate testing with continuous variables. According to Gendreau and Smith (2007), explaining the results of a mean effect size in terms of the *Cohen's d* can be confusing to academics and to researchers in explaining the outcome. Furthermore, Pearson's  $r$  statistic is most easily explained and understood by policy makers because as most experts agree, our brains can easily understand percentages from 1 to 100. The correlation coefficient or  $r$  value results in numerals between -1 and 1 that can then be converted to percentages. The  $r$  value in a meta-analysis should never be squared and "so-called small effects (e.g.,  $r = .10$  or less), while accounting for tiny percentages of variance, [have] powerful implications clinically and from a cost-effective standpoint (cf. Cohen, 1998; Kuncel, Hezlett, & Ones, 2001; Lipsey & Wilson, 1993; Rosenthal & DiMatteo, 2001)" (Gendreau & Smith, 2007, p. 1540). As just stated, a correlation coefficient is considered low if it falls on  $.10$  or below ( $r \leq .10$ ), medium at  $r = .30$ , and high if results with a value of  $r = .50$  or above. The field of criminal justice relies on percentages in all aspects of research, so using this method is the most

appropriate and most accepted. This dissertation reported the effect of an intervention (sanction) represented by the effect size  $r$  statistic.

When using the correlation coefficient  $r$  for the effect size statistic, many meta-analyses include the beta coefficients as well as the Binomial Effect Size Display (BESD). However, according to Gendreau and Smith (2007) many experts and researchers recommend not relying on either of these statistics in meta-analysis. The BESD is not recommended in the absence of a large number of effect sizes. According to Jonson (2010), who computed the BESD in her meta-analysis, it is beneficial when comparing the differences in recidivism for a number of independent variables, such as sentence length, recidivism, and conditions of confinement. Because the studies in this review did not conduct multiple comparisons using other independent variables, and the number of effect sizes were so small, the BESD computation is not appropriate. Secondly, experts agree firmly that beta coefficients should not be used unless all the studies in the analysis use the same independent variables and the same regression statistics (Gendreau & Smith, 2007; Jonson, 2010; Lipsey & Wilson, 2001). “A Beta-coefficient is a partial coefficient...that should not be used in meta-analysis (Gendreau & Smith, 2007, p. 1541).

*Confidence intervals and statistical significance.* In addition to the effect sizes, the 95% confidence interval (CI) was calculated “which is the *interval estimate* that indicates the precision, or likely accuracy, of our point estimate” (Cummings & Finch, 2005, p. 170). The point estimate in this study is the mean effect size ( $\overline{ES}$ ) and the CI is the range around the  $\overline{ES}$  extending on either side at a specified distance. CIs for effect sizes are not calculated the same way that effect sizes are for any means, so care must be

taken. According to Thompson (2002), the endpoints for every CI change with every sample because they are influenced by sampling error and when working with a large number of 95% intervals the expectation is that 1 in 20 will not capture the mean. All CIs for this study were calculated by a renowned software package created exclusively for meta-analysis (Comprehensive Meta-Analysis) and are reported with all effect sizes.

According to experts, there are controversies surrounding the use of statistical significance testing (Cumming & Finch, 2005; Thompson, 2002), but many do agree that in social science research, replication is critically important. The use of p-values for testing significance is discouraged especially with meta-analytic thinking. Small p-values can be misleading in a meta-analysis because they could be the result of sampling variability (Cummings & Finch, 2005). “The appeal of intervals is that across studies using intervals will ultimately lead us to the correct population value, even if our initial expectations are wildly wrong (Schmidt, 1996)” (Thompson, 2002, p. 29). Gendreau and Smith (2007) recommend abandoning the testing of statistical significance by relying on the p-value and rely more on the effect. Additionally, it is important to also note that relationships shown through CIs may be very weak, but can still be very important, and comparing CIs is more important with effect sizes than whether or not they subsume zero (Thompson, 2002).

Therefore, the CIs are included and not p-values in the results with all the **ES** to determine if the effects were significantly different. When comparing the CIs of multiple categories, if the intervals overlap, the values were not significantly different but if they did not overlap, there was a 95% likelihood there was significant differences between the **ES** therefore, the effects were also deemed significant. In addition, if the specified

distance around the  $\overline{ES}$ , the interval, is greater than .10, then the interval is considered wide and, consequently, the  $\overline{ES}$  is imprecise (Gendreau & Smith, 2007). On the opposite end, if the distance is less than .10, the  $\overline{ES}$  is then considered a precise estimate. Also, if the CI “does not include 0, then the mean effect size is statistically significant at the level specified by the confidence interval” (Lipsey & Wilson, 2001, p. 114). According to the American Psychological Association (2010), CIs are recommended for comparison between prior studies and, according to Thompson (2002), CIs should be reported along with the  $\overline{ES}$ .

*Weighted analysis.* As previously mentioned, the most appropriate effect size statistic is derived from the type and number of variables analyzed within each study as well as the type of comparisons desired. The size of each sample in each study dictated the amount of weight given to each. Studies with larger samples were weighted more heavily since larger samples yield more reliable results; the sampling error is reduced. This allowed larger samples more emphasis than smaller samples. In order to ensure that all studies contribute equally to the results of the analysis, optimal weights were computed by taking the “inverse of the squared standard error value” (Lipsey & Wilson, 2002, p. 36).

*Distribution of effect sizes.* As discussed at the beginning of this chapter, in the process of calculating effect sizes and the mean effect size for the studies within a meta-analysis, the question of homogeneity of the distribution must be addressed. The effect size distribution is the main focus of any meta-analysis but there are really four main steps: (1) obtain independent effect sizes, (2) calculate the weighted mean, (3) test the

variability between studies, and (4) define the confidence interval for the mean (Huedo-Medina, Sanchez-Meca, Marin-Martinez, & Botella, 2006; Lipsey & Wilson, 2001).

Because this meta-analysis involved research using different data computed by different measurement tools and different methods to evaluate recidivism, heterogeneity could result in statistical results that were not valid or meaningful. Homogeneity in the context of meta-analysis pertains to between-studies variability (Huedo-Medina et al., 2006).

If a distribution is homogenous, the effect size for an individual study will differ from the population mean by the sampling error only (Lipsey & Wilson, 2001). If the distribution is heterogeneous “the variability of the effect sizes is larger than would be expected from sampling error and, therefore, each effect size does not estimate a common population mean” (Lipsey & Wilson, 2001, p. 115). Many studies report heterogeneity as a concern in research but according to Glass, a pioneer of meta-analyses (Gough, Oliver, & Thomas, 2012) “[S]ystematic reviews of social scientific literature will almost always contain heterogeneous sets of studies. This should be seen as a strength and an opportunity for analysis rather than as a problem and a barrier to producing clear findings.” (p. 55).

The homogeneity of the distribution can be tested by computing the  $Q$  statistic for each individual effect size. A heterogeneous relationship is indicated by a statistically significant  $Q$  (Lipsey & Wilson, 2001). The significance of the  $Q$  statistic was computed in SPSS. The formula according to Lipsey and Wilson (2001, p. 116) for computing the  $Q$  statistic is as follows:

$$Q = (\sum w_i (ES_i^2)) - \frac{(\sum w_i ES_i)^2}{\sum w_i}$$

In the above formula, the  $w_i$  is the individual weight for the individual effect size,  $ES_i$ , where  $i = 1$  to  $k$  which is the number of effect sizes. Outliers can also impact the distribution but one way to reduce the risk of outliers negatively influencing the distribution is to simply eliminate them from the analysis (Lipsey & Wilson, 2001). Another way to reduce heterogeneity is to rely on the random effects model.

*Fail-safe N.* As discussed in Chapter 2, publication and sampling bias is an identified issue with meta-analyses because unpublished studies are not easy to locate and because published studies could be overlooked. The *fail-safe N* statistic was computed to reduce sampling bias due to the possibility that relevant studies were omitted in the meta-analysis. The results of the test indicate the number of studies needed to meet the criterion effect size to determine if the results are significant and clinically important (Lipsey & Wilson, 2001). According to Lipsey and Wilson (2001), published studies are more likely to have a larger mean effect size than unpublished studies. Since published studies are supposedly easier to locate than unpublished, published studies are many times overrepresented in a meta-analysis. In this dissertation, 1 of the 12 studies that met the criteria were unpublished. In order to reduce any questions about bias, the *fail-safe N* developed by Rosenthal (1979) to estimate “the number of unpublished studies reporting null results needed to reduce the cumulated effect across studies to the point of nonsignificance” (Lipsey & Wilson, 2001, p. 166) was used. His formula was adapted later by Orwin (1983) for mean effect sizes calculated using standardized mean difference, but can also be used for other approaches, such as the correlation coefficient. The formula for calculation is below and was calculated and the results are reported in Chapter 4. The effect size level for this dissertation was set to 0.001.

$$k_0 = k \left[ \frac{\overline{ES}_k}{\overline{ES}_c} - 1 \right]$$

The  $k$  value in the equation is the number of studies in the calculated mean effect size. “The  $k_0$  value is the number of effect sizes with a value of 0 needed to reduce the mean effect sizes to  $\overline{ES}_c$  which is the criterion effect size level. The weighted mean effect size is  $\overline{ES}_k$  (Lipsey & Wilson, 2001, p. 166).

*Coding of studies.* After the articles were selected for the study, a detailed coding manual was used to extract the information from each study in a systematic manner. The coding guide contains questions the coders answered with information from each study as well as names for each variable (See Appendix C). Each study was assigned a unique study identification number. The coding guide began with the criteria for inclusion in the analysis to determine whether or not the study met the requirements for further coding. Each question was ordered in a hierarchical manner to reduce further coding if the study neglected to meet the criteria as needed.

As previously mentioned, coding is a time-consuming and difficult task due to the variability and range of the results found in the studies that meet eligibility for the analysis (Durlak & Lipsey, 1991). Two experienced doctoral students with backgrounds in coding and additional training in the coding procedure, statistics, and criminal justice conducted the coding in order to ensure interrater reliability. As a part of training and practice, both students coded 3 studies (not included in this analysis) and the results were checked and discussed between the two students and this researcher. This served as a practice run and indicated that both students were trained and prepared. Durlak and Lipsey (1991) stated that coders must be trained “to criterion

levels of consistency in their ratings” (p. 304) before the meta-analyst should accept their work for inclusion in the analysis. Each study was interviewed by the coders who completed each question included in the coding manual as they progressed through each study.

Many of the questions in the coding manual could be answered with yes or no. “Yes” was coded as 1, “no” coded as 2, and “missing” coded as 9. For questions that asked for a numerical answer, the numeral was written in by the coder. Questions that required specific answers such as the study offense were coded 1-7 and 9 for missing. After all studies were coded, the results were compared and any discrepancies were discussed. Both students coded the same information with the exception of one result from one study. The discrepancy was discussed and an agreement was reached with the students and this meta-analyst.

*Threats to validity.* The purpose of this research that works towards solving the identified problem within the juvenile justice system relied solely on the studies included in the systematic review. It was obligatory that studies that were included in this review were reliable in their data reporting and used evidence-based practices in their outcome reports. Since this study was 90% review of previous studies, the majority of the work was accessing search engines, research sources, local academic libraries, government websites, academic journals, and any other sources found to be relevant to the research. The amount of time and effort required to collect studies and review to ensure each met the research criteria was only a small disadvantage. A reliable study required specialized knowledge from the researcher that demanded dedication and an extreme amount of effort. Additional training was sought through



mentors and other experts.

In order to minimize bias and allow replication, all procedures were defined in advance of any study collection (Campbell Collaboration, n.d.). As mentioned above, the methodological quality of the studies collected for the sample could be misleading and the basis for inclusion in the sample could have been easily flawed. A stricter methodological criterion could have rejected certain studies that contain imperfect research resulting in fewer studies, but the researcher was assured that the synthesis of research was from high quality studies; however, this narrowed the research domain and limited the generalizability of the results (Lipsey & Wilson, 2001). Relying only on traditionally published literature could have created bias when there were so many other studies and reports that were important (Wholey, Hatry, & Newcomer, 2010). A more lenient methodological criterion would have allowed more studies included in the sample, reduced the time and effort, and according to Greenland (1994), the variation in methodological quality can be addressed empirically as part of the systematic review. If the results from a study were extremely varied from other studies conceptualized similarly, the study was excluded with an explanation. Conclusions, recommendations, and limitations about a relationship between incarceration and serious juvenile offending were drawn from the studies in this research and inaccurate, invalid, and unreliable research could have dramatically impacted the results of those recommendations.

While conducting any research, there is always the possibility that a study could be retracted for any number of reasons, such as inaccurate data results, experimental trials under investigation, falsifying data or results, or manipulating the data. This researcher received notification of a resource, Retraction Watch (<http://retractionwatch.com/2015/12/21/critics-of-2008-concussion-study-failed-to-note->

nfl-ties/) that posts studies under investigation or studies that have been retracted. The source was examined for any possible notification on the studies included in this dissertation and none were identified.

Because this researcher only reads and comprehends the English language, all studies were limited to that dialect. Studies vary in many ways and most studies differed in some way by sample size. This was taken into consideration when comparing findings. The value from larger samples were more precise in their estimates of the population than from smaller samples. Any average of the means of two studies with very different sample sizes could result in the smaller sample contributing to the result as much as the larger sample. This potential threat was minimized by using weights that were based on the standard error.

This researcher is required by the mere origin of the material used in determining merit of a study to adhere to a caution in validity and reliability identified by Huck (2013) that both reliability and validity reported in any study "...[are] really characteristic[s] of the data produced by a measuring instrument and not a characteristic of the measuring instrument itself" (p. 86). A major delimitation facing any research is that there may be little or no studies found on certain areas of focus and, therefore, will not be included in this systematic review. In addition, because of the number of studies completed on juvenile offending and the number of articles available in the databases, it is possible to use certain keywords or certain symbols during a search that excludes relevant studies and is also possible to include irrelevant studies.

## Conclusion

There are a number of concerns presented at the beginning of this chapter followed by detailed solutions for each. Those fears are summarized here. The effects model and the threat of heterogeneity were the first concern faced by this meta-analyst. A random effects model was chosen as the default instead of beginning with the fixed and changing later in the study. The question of homogeneity was handled with the  $Q$  test and the results are reported in the next chapter. Statistical independence was the second concern listed above. All effect sizes must be independent; therefore, only one effect size was calculated per sample study, ensuring independence. The third concern was publication bias. There are a number of *fail-safe*  $N$  equations to address bias but Orwin's is the most widely used and successful. It was used in this case to report bias and those results are in Chapter 4. The fourth concern and one of the most impactful is the sample sizes. Not weighting samples according to their size could result in misrepresentative effect sizes. Smaller studies should have less effect on the mean effect size and weighting the samples corrected that possible error. CMA calculates the weights, applies the weights and calculates the effect sizes from the weighted samples. This was completed and reported in Chapter 4. Outside factors influencing the mean effect size is the next concern. The studies in this meta-analysis only included certain moderators and if they are not there, this meta-analyst cannot analyze them. Moderator analysis was conducted on the variables included and all results were reported in Chapter 4 including missing moderators and unreported results. All a meta-analyst can do is report the findings.

The sixth concern explained above is the mean effect size statistic. It is a concern for any beginner meta-analyst that the wrong statistic will be chosen and therefore, the

results are erroneous. With the CMA software this is not possible. CMA allows the meta-analyst to include all types of data from all different statistical tests and convert to one common effect size. The software also allows the meta-analyst to exclude studies and review all results in the case of outliers. This was completed and reported in Chapter 4. The final concern discussed above is the coding and interpretation. This was solved in two ways. First, two experienced doctoral candidates coded all studies and the results were compared. Any discrepancies were handled and correct information stored then coded in the software. All coding was double checked. The data interpretation was initially difficult, but the support department for the CMA software and the ordinal designer of the software were contacted and all data and results were substantiated.

The next part of the chapter discussed the methods for the study and how all concerns were handled in detail. The type of statistic was detailed along with each test for significance. The chapter ended with the threats to validity and a summary of the concerns along with the resolutions.

## CHAPTER 4: DATA ANALYSIS AND RESULTS

### Introduction

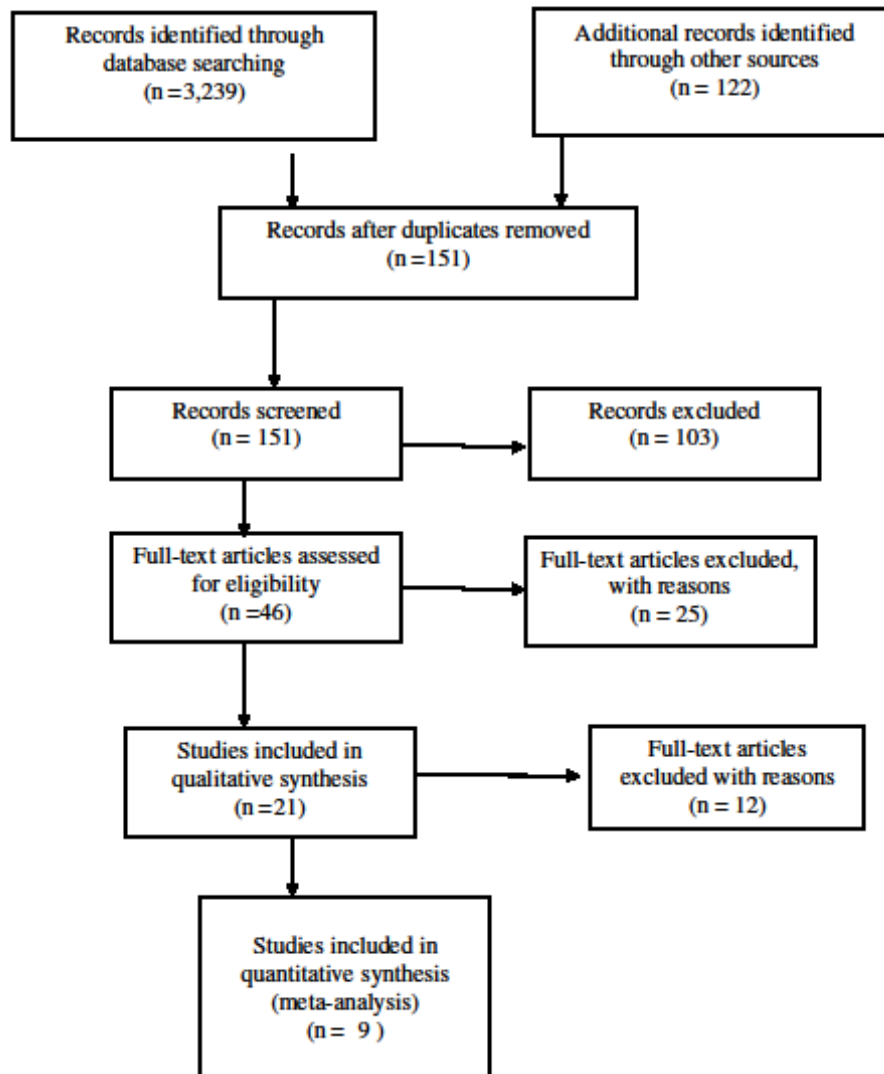
The focus of this dissertation is to answer four research questions on the effectiveness of incarceration on juvenile recidivism. This study was motivated from the numerous studies that were located and read by this researcher over the last 10 years of researching juvenile sentencing, as illustrated in the introduction and the literature review. Experienced researchers have discussed incarceration for juveniles and reported on the lack of incarceration successfully reducing recidivism since the 1930s. After an exhausted search, only a limited number of studies were located that actually met the criteria for this search: an experimental design comparing incarceration with another sanction. Many studies have been conducted on recidivism rates following juvenile incarceration alone and reported on the risk factors towards incarceration, the programs available in an institution that might reduce recidivism, the recidivism rates of juveniles following release, and factors during post release that increase the risk of recidivism; however, those variables were not the focus of this study.

### Results of the Systematic Review

Upon initial search in Jstor database using the keywords: “juveni\*” and “incarcerat\*” or “adolescen\*” or “youth” and “offend” or “crimin\*” or “recidiv\*” and “incarcerat\*” resulted in 22,783 studies. The same search in Proquest Central database resulted in 24,586 studies. A search was also conducted in other databases listed in Chapter 3 using the keywords: “juveni\*” or “adolescen\*” or “youth” and “offend\*” or

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“crimin\*” or recidivi\* and “incarcerate\*” or “prison or “detention” or “sentence\*” or “interventi\*” that resulted in over 285,000 studies located anywhere in the text. This researcher worked with expert librarians to refine the search. A search was then conducted for keywords located “anywhere but full text” and used more specific keywords “recidivi\*”, “juvenile\*”, “incarcerat\*”, and “experiment\*” that resulted in 3,239 results, 3,066 for published studies and 173 of unpublished studies. An additional 114 studies were identified from reference sections of published studies. Experts in the field and researchers who had conducted earlier studies were contacted via email and phone. The results of contacting experts resulted in an additional eight studies, working papers, in press or unpublished. The initial results were very high because as the numbers show, juveniles and recidivism is a popular topic and researched quite frequently. From the 3,353 located through databases and reference sections, 170 were downloaded and printed. This number combined with the eight received through mail and email resulted in 178 reviewed. Studies located included comparison of programs in an institution, comparison of sanctions but not separating incarceration as a variable, examining the effect of other factors on recidivism rates, and many reported recidivism rates following incarceration, but not through experimental design with another sanction. Figure 3 presents a flow chart showing the progression of findings.



*Figure 3*  
Flow chart Showing Search results for Studies in the Systematic Review and Meta-Analysis

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This researcher reviewed all 178 studies that were printed by reading the abstract and title; the reference sections were also reviewed again for any additional studies. No new studies were located, only duplicates. One of the eight studies received by experts was discarded as a duplicate, and of the 170 studies, 26 were duplicates and were discarded, leaving 151. That number was reduced again to 46 possible studies that reported on juvenile recidivism. At that point, every study was rigorously reviewed by reading the methods and results sections to ensure it met the methodological criteria before selected for coding. Out of the 46 studies, 21 were identified for possible analysis between any sanctions and incarceration through the methodological review. The 25 studies were excluded for the following reasons: 16 were not experimental studies, one did not compare appropriate sanction groups, three did not have the population meeting the criteria, three did not report appropriate recidivism outcome data, one did not report outcomes, and one compared recidivism rates between programs and not different sanctions. The results and the reasons for each exclusion are listed in Table 4. The 21 studies identified for the methodological review were surveyed using the questions included in Appendix B through Excel Survey Online and the results were transferred to an excel spreadsheet. The results were reviewed and nine (marked with an \* in Table 3) of those studies were rejected due to measurement tools, incorrect independent variables (sanctions) and missing data. An additional three were excluded during the coding due to data not collected according to the criteria, one where the control group spent time incarcerated, and the third was found to not have separated the data. They are marked with \*\* in Table 3.



Table 3

*Studies excluded from the Final Sample and Reason for Exclusion*

| Study   | Reason                    | Study                             | Reason                          |
|---|---------------------------|-----------------------------------|---------------------------------|
| Austin, Johnson, & Weitzer, 2005                  | Not an experimental study | Klein, (1979)                     | Not an experimental study       |
| Argus, 2014                                       | Not an experimental study | Lodewijks et al., 2008            | Not an experimental study       |
| Barrett, Katsiyannis, & Khang, 2010               | Not an experimental study | Matsuda, 2009                     | Not an experimental study       |
| **Barton, & Butts, 1990                           | Sanctions not separated   | *MacKenzie, 1991                  | Population did not fit criteria |
| Day, Zahn, & Tichavsky, 2015                      | Compared programs         | Minor, Hartman, & Terry, 1997     | Data did not match              |
| DeLisi, et al., 2011                              | Not an experimental study | McMackin, Tansi, & LaFratta, 2004 | Not an experimental study       |
| Dembo et al., 2008                                | Not an experimental study | Mulvey, & Schubert, 2012          | Data did not match              |
| *Deschenes & Greenwood, 1998                      | Sanctions not appropriate | *Myers, 2003                      | Sanction did not meet criteria  |
| Dumont & Maine Department of<br>Corrections, 2013 | Not an experimental study | Nagin et al., 2006                | Not an experimental study       |
| Empey, 1967                                       | Not an experimental study | *Nagin & Snodgrass, 2013          | Data did not match              |
| **Fass & Pi, 2002                                 | Predictions not Actual    | Piquero & Steinberg, n.d          | Not an experimental study       |
|   |                           | *Redding, 2003                    | No Outcome Variable             |

Table 3 cont'd

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| Study                              | Reason                      | Study                               | Reason                          |
|------------------------------------|-----------------------------|-------------------------------------|---------------------------------|
| Giebel & Hosser, 2013              | Not an experimental study   | *Ryan, Abrams, & Huang, 2014        | Sanction did not meet criteria  |
| **Gottfredson & Barton, 1993       | Incorrect Control group     | *Schneider, 1986                    | Sanction did not meet criteria  |
| Green, D. P. & Winik, D., 2010     | Population not fit criteria | Smith, & Aloisi, 1999               | Predictions not Actual          |
| Harder, Knorth, & Kalverboer, 2011 | Not an experimental study   | Stahlkopf, Males, & Macallair, 2010 | Data did not match              |
| Heilbrun, K., et al., 2000         | Not an experimental study   | Sullivan, & Latessa, 2011           | Sanctions did not meet criteria |
| *Hjalmarsson, 2009                 | Missing Data                | Villettaz, Killias, & Zoder, 2006   | Population did not fit criteria |
| Kempinen, & Kurlycheck,(2003)      | Population not fit criteria | *Wells, Minor, & Angel, 2008        | Data did not match              |

This final number of studies was less than expected when this study began, but according to recent research, it is not unusual. Nagin, Cullen, and Jonson (2006) conducted a study on recidivism and imprisonment where they reported on available studies and the methodologies. They found only five experimental or quasi-experimental studies that compared custodial and noncustodial sanctions for adults and juveniles, and only two that included juveniles solely. Those that Nagin et al. (2006) identified were reviewed for this dissertation and were included in the final 21, but after the in-depth review, only one met the criteria.

**Methodological Review.** As stated above, one advantage to a systematic review is that a good review is an empirically structured research technique that documents each step of the process by synthesizing findings from multiple studies (Bachman & Schutt, 2014; Lipsey & Wilson, 2001). A systematic review includes an in-depth critique of the methods of each study that meets criteria for inclusion. The methodological review was completed on the eight remaining studies. Effect sizes were calculated to examine the effectiveness of preventing recidivism between incarceration and non-incarceration sanctions. The experimental sanctions, the control sanctions, publication characteristics, recidivism measurements, quality of the methods, and moderating variables were all coded to compare incarceration versus non-incarceration. The nine studies that met the final criteria and were coded for the meta-analysis are listed in Table 4. The results of the methodological review for the studies and the effect sizes are presented below.

Table 4

*References of Studies Meeting Final Criteria for the Systematic Review and Meta-Analysis*

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- Botcher, J., & Ezell, M. E. (2005). Examining the effectiveness of boot camp randomized experiment with a long term follow up. *Journal of Research in Crime and Delinquency*, 42(3). 309-332
- Kraus, J. (1974). A comparison of corrective effects of probation and detention on male juvenile offenders. *The British Journal of Criminology*, 14(1). 49-62. Retrieved from <http://www.jstor.org/stable/23636089>
- Loughran, T. A., Mulvey, E. P., Schubert, C. A., Fagan, J., Piquero, A. R., Losova, S. H. (2009). Estimating a dose-response relationship between length of stay and future recidivism in serious juvenile offenders. *Criminology*, 47(3). 699-740.
- McGrath, A., & Weatherburn, D. (2012). The effect of custodial penalties on juvenile offending. *Australian & New Zealand Journal of Criminology*, 45(1). Doi: 10.1177/0004865811432585
- Ryon, S. B., Early, J. W., Hand, G., & Chapman, S. (2013). Juvenile justice interventions: System escalation and effective alternative to residential placement. *Journal of Offender Rehabilitation*, 52, 328-375. Doi: 10.1080/10509674.2013.801385
- Wells, J., Minor, K. I., Angel, E., & Stearman, K. D. (2006). A quasi-experimental evaluation of a shock incarceration and aftercare program for juvenile offenders. *Youth Violence and Juvenile Justice*, 4(3). Doi: 10.1177/1541204006290153
- Wells, J., Minor, K. I., Westmorland, T. A., & Angel, E. P. (2008). *Kentucky department of juvenile justice: Juvenile sex offender study. Unpublished manuscript.* Department of Correctional and Juvenile Justice Studies, Eastern Kentucky University, Richmond, Kentucky.
- Wiebush, R. G. (1993). Juvenile intensive supervision: The impact on felony offenders diverted from institutional placement. *Crime & Delinquency*, 39(1). 68-89.
- Winokur, K., P., Smith, A., Bontrager, S. R., & Blankenship, J. L. (2008). Juvenile recidivism and length of stay. *Journal of Criminal Justice*, 36, 126-137.
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**Sanctions and Measures of Recidivism.** The effect sizes were derived from studies that labeled the independent variable of incarceration using two different terms, 3 as secure residential (n=2) and the others as incarceration (n=7) (incarceration coded as 1, secure residential coded 2). Both met the definition of juvenile institutionalization for this current study. One study that used secure residential explained that the criminal justice system in the state where the study originated, had different levels of residential placement according to the risk of safety of the juvenile: low risk, moderate risk, high risk and maximum risk. For this study, only the effect sizes comparing high risk and maximum risk with nonresidential were used. Sampling bias can occur when more than one effect size is used from the same sample (D. Wilson, personal communication December 28, 2015); therefore, the median was calculated and used as the effect size. These two levels are the most secure with perimeter fencing, hardware secure, and 24-hour awake staff. The youth identified as maximum risk were placed in prison-like facilities in single cells.

The other independent variable was the comparison group or control group and consisted of 5 different sanctions as shown in Table 5 with incarceration. These results were collected from the coding of each study. Two studies compared incarceration with correctional boot camps that was coded as the control group: 2 as community-based sanctions, 3 as probation, 1 as intensive probation, and 1 as non-residential. Both of the correctional boot camps included facilities in Kentucky and community-based sanctions included unsupervised bonds, fines, and formal rehabilitation programs and community supervision. One study compared both probation and intensive probation with incarceration, but for this study, intensive was coded as the control. The other three

effect sizes were calculated from studies defining probation as traditional probation. Non-residential was used from the same study that reported multiple levels of residential placements and refers to the state's least restrictive placements.

Table 5

*The Number of Effect Sizes for The Independent and Dependent Variables*

| Study Characteristics              | *k | %    |
|------------------------------------|----|------|
| Type of Incarceration Sanction     |    |      |
| Incarceration                      | 7  | 77.8 |
| Secure Residential Commitments     | 2  | 22.2 |
| Type of Non-Incarceration Sanction |    |      |
| Correctional Boot Camp             | 2  | 22.2 |
| Community Based Sanctions          | 2  | 22.2 |
| Probation                          | 3  | 33.3 |
| Intensive Probation                | 1  | 11.1 |
| Non-residential Placement          | 1  | 11.1 |
| Recidivism Measure                 |    |      |
| Arrest/Charged by Police           | 6  | 66.7 |
| Conviction or Adjudication         | 3  | 33.3 |
| Length of Follow-up Period         |    |      |
| 3 – 12 months                      | 4  | 44.4 |
| 13 – 24 months                     | 2  | 22.2 |
| 25 – 36 months                     | 0  | 0.0  |
| 36 + months                        | 3  | 33.3 |
| Total Effect Sizes                 | 9  | 100  |

\*k = the number of effect sizes

Table 5 also includes the measures of recidivism, the dependent and variables that were coded to compare with incarceration versus non-incarceration. Effect sizes were calculated from studies using arrest data and conviction or adjudication. The studies that used conviction or adjudication used the terms interchangeably. The number of effect sizes were calculated with 33.3% using conviction or adjudication and 66.7% using arrests or charged by police. Of the studies that used arrest, they reported that some cases had multiple arrests and therefore, they would choose a certain number according to the focus on their study. For instance, one study used the three most serious offenses per arrest. One study also checked both juvenile arrests and adult arrest for juveniles. All of the studies followed the juveniles for a selected time frame following release from either incarceration or the control group sanction. The time varied from six months to five years with the most (44%) using 12 months as the maximum time for follow up. The other five studies followed the juveniles for up to 24 months (22.2%) and for over 36 months (33.3%).

**Design Quality.** The quality of the methods and the results was evaluated using Appendix B questioning the design of the studies for each effect size as well as the confidence of this researcher on how the juveniles were assigned to both the experimental and control groups. This review included experimental and quasi-experimental studies. As shown in Table 6, most of the studies were quasi-experimental because randomization was not possible due to the scarcity of well-controlled studies in the area of corrections and punishment. Only one study used a random sample or experimental method (11.1%). Three of the effect sizes (33.3%) were based off of a non-randomized design where the comparison groups had acknowledged differences and five (55.6%) from a non-

randomized design that showed strong evidence of initial equivalence between the groups. Many of the studies used data from official sources during a specific time frame and others combined interviews and self-reported data. Official data was used for each study. This researcher also evaluated the quality of the methods according to how the sample was assigned to groups. The findings indicate that this researcher was very highly confident on how a large percentage, 66.7%, reported how the juveniles were assigned to groups and she was slightly less confident on how 33.3% they were assigned to the sample. The methodological guide (Appendix B) included lower confidence levels such as low and medium but they are not included in Table 6 since there were no findings. Attrition was also very positive with all reporting low attrition under the 20% mark.



Table 6

*Descriptive Statistics: Methodological Quality and Study Design*

| Methodological Quality  | * <i>k</i> | %    |
|---|------------|------|
| Non-Randomized Design, comparison groups have acknowledged differences            | 3          | 33.3 |
| Non-Randomized design with strong evidence of initial equivalence                 | 5          | 55.6 |
| Randomized Design   | 1          | 11.1 |
| High (strong inference) Confidence of how Juveniles were assigned to groups       | 3          | 33.3 |
| Very High (explicitly stated) Confidence of how Juveniles were assigned to groups | 6          | 66.7 |
| Attrition less than 20%   | 9          | 100  |

\**k*= the number of effect sizes

**Publication Characteristics.** Table 7 shows the findings for the publication characteristics of the studies following the methodological review. Most of the effect sizes were calculated from studies (n=5, 55.6%) published in the 2000s, one from a study published in the 1970s (11.1%), one published from research in the 1990s (11.1%), and two in the 2010s (22.2%). All but one of the studies were journal articles (88.6%) and one was a working paper (11.1%). The author’s affiliation for the effect sizes included one who was associated with a federal agency, (11.1%) (an Australian government

agency), one had a state affiliation, and the most, seven (77.8%) were affiliated with a university, but received funding from state (66.7%) and federal (22.2%) agencies. One study did not report their funding source (11.1%). The last characteristic on publication was the geographical area where the study originated. Most of the effect sizes were derived from studies conducted in the United States (n=7, 77.8%) and the other two were from Australia (22.2%).

Table 7

*Descriptive Statistics: Publication Characteristics for Incarceration vs. Non-Incarceration*

| Publication Characteristic   | *k | %    |
|------------------------------|----|------|
| <b>Publication Decade</b>    |    |      |
| 1970                         | 1  | 11.1 |
| 1980                         | 0  | 0    |
| 1990                         | 1  | 11.1 |
| 2000                         | 5  | 55.6 |
| 2010                         | 2  | 22.2 |
| <b>Decade Gathered</b>       |    |      |
| 1960                         | 1  | 11.1 |
| 1990                         | 1  | 11.1 |
| 2000                         | 7  | 77.8 |
| <b>Publication Type</b>      |    |      |
| Journal/Published            | 8  | 88.9 |
| <b>Author Affiliation</b>    |    |      |
| University                   | 7  | 77.8 |
| State Agency                 | 1  | 11.1 |
| Federal Agency               | 1  | 11.1 |
| <b>Type of Funding Agent</b> |    |      |
| State Funded                 | 6  | 66.7 |
| Federally Funded             | 2  | 22.2 |
| Not Reported                 | 1  | 11.1 |
| <b>Geographical Location</b> |    |      |
| United States                | 7  | 77.8 |
| Australia                    | 2  | 22.2 |

\*k = the number of effect sizes

**Demographic Characteristics.** In addition to the publication characteristics, demographic characteristics were also coded from the nine effect sizes to include gender, age, race, and type of offender (Table 8). The offenders were between the ages of 10 and 13 from one study (11.1%) and between the ages of 13 and 16 for three studies (33.3%). The oldest category included juveniles over the age of 16 and the findings showed that 44.4% were included in the older category and 11.1% did not report age. The mean age for the whole sample was calculated to 15.57 years with a standard deviation of 1.66. As illustrated by the standard deviation, there was little variability in age. Most of the effect sizes were calculated from studies that did not report gender according to different sanctions but reported it for the entire sample. Fifty-five percent (55.5%) were computed from studies that included exclusively 52% to 95% males and 33.3% that researched over 95% males. Again 11.1% did not report the gender. The results for race were close to the distribution of gender with 66.7% of the samples reporting over 60% white, 22.2% with no one race over 60% and one that did not report on race (11.1%). The last characteristic in Table 6 is one of the most important, the adjudicated offense, in determining the effects on recidivism. In a majority of the studies, 55.6%, the sample of offenders consisted of juveniles who were adjudicated on different types of offences, 11.1% were focused on sexual offenders only, 22.2% on violent offenders, and 11.1% did not report the type of offender.

Table 8

*Descriptive Statistics: Demographic Characteristics of Incarceration vs. Non-Incarceration*

| Sample Characteristic    | *k    | %    |
|--------------------------|-------|------|
| Age of Offenders         |       |      |
| 10 to 13 years           | 1     | 11.1 |
| 13 to 16 years           | 3     | 33.3 |
| Over 16                  | 4     | 44.4 |
| Missing                  | 1     | 11.1 |
| Mean age                 | 15.57 |      |
| Standard Deviation       | 1.66  |      |
| Gender of Offenders      |       |      |
| Exclusively Males 52-95% | 5     | 55.6 |
| Over 95% Males           | 3     | 33.3 |
| Missing                  | 1     | 11.1 |
| Race of Offender         |       |      |
| Over 60% White           | 6     | 66.7 |
| Over 60% Hispanic        | 0     |      |
| Over 60% other minority  | 0     |      |
| Mixed-None over 60%      | 2     | 22.2 |
| Missing                  | 1     | 11.1 |
| Type of Offender         |       |      |
| All                      | 5     | 55.6 |
| Sexual                   | 1     | 11.1 |
| Violent                  | 2     | 22.2 |
| Missing                  | 1     | 11.1 |

\*k = number of effect sizes

**Missing Moderators.** Even though the focus of this study was not on socio-economic status, education, prior convictions, prior sanctions, or employment, they are important moderators towards recidivism. Unfortunately, they were not included in the studies meeting the criteria for this dissertation and, therefore, not included in the analysis.

**Sentence Length.** The impact of sentence length is an important element when studying the effectiveness of incarceration and other sanctions on juvenile offending. Although the difference in recidivism rates between incarceration and non-incarceration is the main focus of this dissertation, any study that includes incarceration should also include sentence length. As discussed in Chapter 2, researchers reported that a longer length of time incarcerated can result in higher recidivism rates. Additionally, Jonson (2010) stated that a study would be incomplete without including sentence length. The coding manual (Appendix C) included questions on sentence length in months, but only five of the nine effect sizes came from studies that included the time served for juveniles. The mean length for juveniles who were not incarcerated was 10.8 months ( $sd = 6.36$ ) and 11.79 months ( $sd = 5.62$ ) for incarcerated juveniles. Those means were calculated from the mean lengths reported for the effect sizes from 6 to 20 months for incarcerated and from 6 to 18 months for non-incarcerated. Two effect sizes came from studies reporting 6 to 9 months for incarcerated (22.2%) and one each for 10 to 12 months and 15 to 18 months (11.1%). The longest time for incarcerated youth was 19.24 months that came from one study (11.1%) with four studies not reporting sentence length (44.4%).

The frequencies and percentages along with the means and standard deviations are presented in Table 9.

Table 9

*Descriptive Statistics: Length of Stay for Incarceration vs. NonIncarceration*

| Publication Characteristic          | *k    | %    |
|-------------------------------------|-------|------|
| Mean Length for Incarcerated        |       |      |
| 6 to 9 months                       | 2     | 22.2 |
| 10 to 12 months                     | 1     | 11.1 |
| 15 to 18 months                     | 1     | 11.1 |
| 18-20 months                        | 1     | 11.1 |
| Missing                             | 4     | 44.4 |
| Mean Length for Non-incarcerated    |       |      |
| 6 to 9 months                       | 1     | 11.1 |
| 15 to 18 months                     | 1     | 11.1 |
| Missing                             | 7     | 77.8 |
| Mean for Incarcerated               | 11.79 |      |
| Standard Deviation for Incarcerated | 5.62  |      |
| Mean for Non-Incarcerated           | 10.8  |      |
| Standard Deviation for Incarcerated | 6.36  |      |

\*k = number of effect sizes

As the data and information were coded for moderators from the studies, a number of issues arose. For instance, there were numerous variables (e.g. survival time, prior offenses, prior placements, education) included in the coding manual but not reported in the studies. The impact of sentence length on recidivism as indicated in Table

8 is important when researching different sanctions, but it was not reported by all researchers and therefore, the results are not conclusive.

### **Results of the Meta-Analysis**

As previously mentioned, there were nine studies identified from over 3,000 studies searched that matched the criteria for this systematic review and meta-analysis. Two of the studies compared multiple sanctions, one compared four levels of incarceration with non-residential, and one compared incarceration with both probation and intensive probation. Only one effect size could be coded for each study.

The methods of meta-analysis assume that each effect size is statistically independent. Effect sizes based on the same sample are not independent.

Violating this assumption will result in seriously biased results (a standard error that is too small is the most direct result of this violation). (D. Wilson, personal communication December 28, 2015)

As stated in Chapter 3, the meta-analysis method is used to synthesize research by taking the data from a number of studies and converting that data into one common statistic, the effect size. The following information and tables represent the results of the nine effect sizes calculated from the nine studies.

**Effect Size Estimates.** This dissertation utilized the correlation coefficient  $r$  for the effect size estimate as explained in Chapter 3. When the data was being collected to compute effect sizes, the results showed that not all studies presented the data in a straight-forward manner. One study reported minimal data and additional statistics had to be computed, or computed using another statistic then converted to  $r$ . The studies also



used multiple analysis methods to evaluate the data and combining into one recognized statistic was a tiresome task.

Each study within this analysis reported different sample sizes ranging from 68 to 17,779. The larger sample sizes result in more precise results with a smaller sampling error; therefore, they should have more emphasis than studies with smaller sample sizes. Out of the nine studies used in this analysis, two had large sample sizes for the control groups. The sample sizes and the weighted sample sizes were calculated using the software Comprehensive Meta-Analysis and are presented in Table 9. The effect size was calculated multiple times to prevent any errors and double check accuracy with Campbell Collaboration's calculator and CMA's software. According to and Lipsey and Wilson (2001) the level of effect is interpreted as small ( $r \leq .10$ ), medium ( $r = .0$ ) or large ( $r \geq .80$ ).

The  $Q$  test was conducted to test homogeneity and the results indicated a statistically significant relationship showing heterogeneity (61.08,  $p \leq .000$ ); therefore, the random effects model as explained in Chapter 3 is the correct effect size model. This result indicates a lot of variability between the studies that is not due to the standard error alone. This result opens the possibility of moderators impacting the effect size so additional statistics were completed on the moderators included in the studies. Publication bias was also tested through the program Comprehensive Meta-Analysis and the results of Orwin's *fail-safe N* indicated that 421 additional studies with a mean effect of .00 are needed to reduce the criterion level of the weighted mean effect size to the desired value of 0.001. The likelihood of finding 421 studies with a mean effect of .00 is extremely improbable. This result indicates that publication bias is not a cause for

concern in this study and the weakness described as the file-drawer problem discussed in Chapter 2 is not present.

Before discussing the results of the effect size computation for each study, first it is important to explain the meaning for each result. If the estimate is a positive effect size this corresponds to incarceration having a positive effect on recidivism or a decrease in recidivism. A negative effect size indicates that incarceration increases recidivism and the non-incarceration sanction decreases recidivism. For instance, a result of  $r = -20$  means that the control (non-incarceration) reduces recidivism 20% better than the treatment (incarceration). Another way to state that is incarceration has a 20% lower success rate on reducing recidivism than non-incarceration. As explained, all samples were weighted to allow for more emphasis from the larger samples. Following the weighting of the samples and calculating the effect sizes, a weighted mean effect size was calculated. Additionally, a 95% confidence interval around the effect sizes and mean effect sizes was computed. Intervals should be less than .10 in width if the result is a precise estimate of the true perimeter. If the intervals overlap, this indicates that the effects are not significantly different but if the 0 value is not included in the interval, then the result is statistically significant. It's important to note that statisticians do not agree on a hard line for the width of the interval and state that every interval should be evaluated on its own merit.

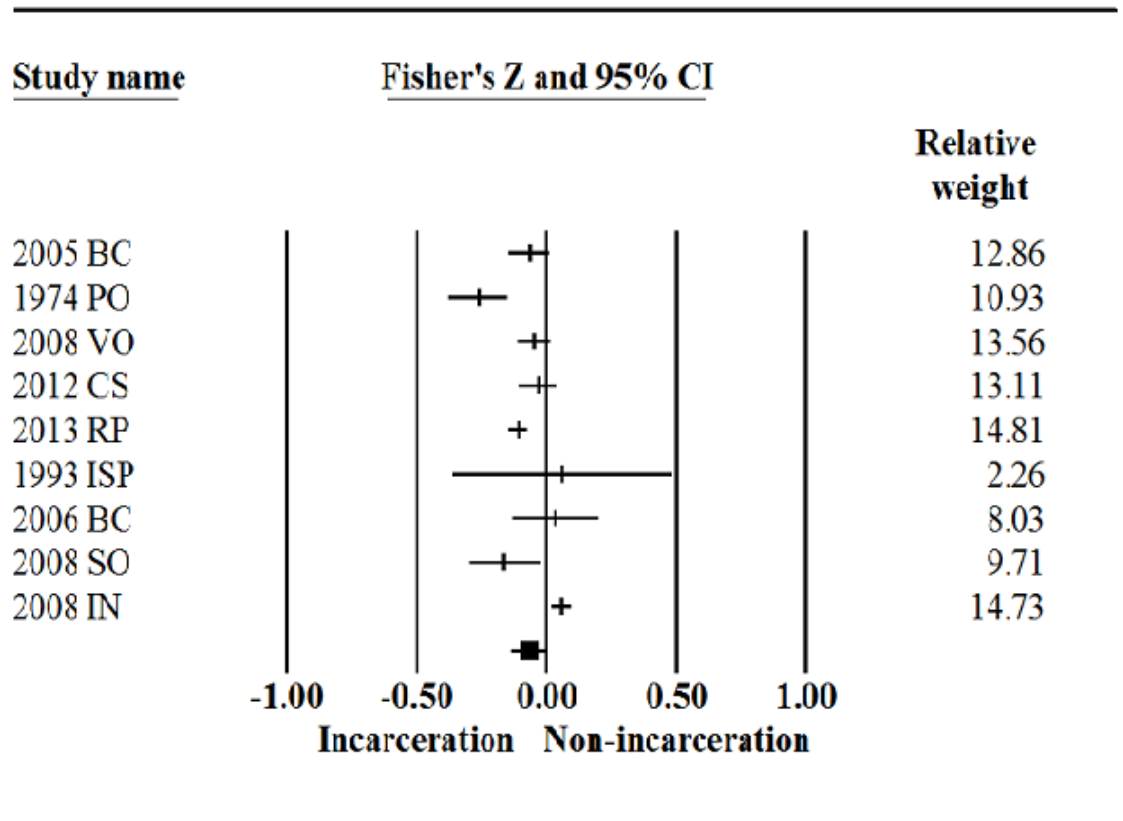
The effect sizes, the weighted effect sizes, sample sizes and weighted sample sizes were computed for every study and results are presented in Table 10. The weighted sample sizes reduced the effect sizes according to each weight applied to each sample size. In addition, the software package used the weighted effect sizes of each study to calculate the mean effect sizes but did not report those results for each individual study.

It did, however, report the weighted sample sizes and the calculations. For instance, the largest sample ( $n = 3,092$ ) was weighted a little over 16% to  $W = 120$  and the smallest sample from  $n = 136$  to  $W = 18$  (2.5 %). As indicated in Table 10 the largest effect on recidivism was found for study 2 ( $r = -.26$ ) with an original sample of  $n = 446$  and a weighted sample size of  $W = 89$  and the lowest was found at  $r = -.03$  for study four with an original sample of  $n = 716$  and a weighted sample size of  $W = 106$ . The results also show that 66.6% of the studies indicated increases in recidivism ( $r = -.03, -.05, -.07, -.11, -.16$  and  $-.26$ ) with decreases for the other 33.3% ( $r = .04, -.06,$  and  $.06$ ). There was over 20% increase across all studies of recidivism. Immediately following Table 10 is Figure 4 which shows the results of the individual studies and a forest plot of the confidence intervals.

Table 10

*Sample Sizes, Weighted Sample Sizes and Effect Sizes for Incarceration vs. Non-Incarceration*

| Study | $n$   | $W$ | $r$  |
|-------|-------|-----|------|
| 1     | 632   | 104 | -.07 |
| 2     | 446   | 89  | -.26 |
| 3     | 921   | 110 | -.05 |
| 4     | 716   | 106 | -.03 |
| 5     | 3,092 | 120 | -.11 |
| 6     | 136   | 18  | .06  |
| 7     | 192   | 65  | .04  |
| 8     | 157   | 78  | -.16 |
| 9     | 2,746 | 120 | .06  |



*Figure 4:* Individual Studies in the Meta-Analysis and the Confidence Intervals. This was calculated and designed by Comprehensive Meta-Analysis Software purchased from Biostat, Englewood, NJ. Biostat, Comprehensive Meta-Analysis Software (Version 3.0) [Software]. Available from <https://www.meta-analysis.com/pages/full.php>

**Mean Effect Sizes: Sanctions and Measures of Recidivism.** The effect sizes and the mean effect size for incarceration vs. non-incarceration were also calculated. Those characteristics with an effect are presented in the following tables. A 95% confidence interval around the mean effect size was also computed and is included in the results. The confidence intervals for each variable were compared to determine if any had a significant moderating effect and if the effect sizes were statistically different (Cummings & Finch, 2005). If the intervals did not overlap, the conclusion was that

there was a 95% chance that the moderators had a significant effect and the effect sizes were significantly different. The reasons behind the difference is out of the scope of this dissertation.

Table 11 presents the effects of the sanction categories, recidivism measures and lengths of follow-up for measuring the effect on incarceration across each group. Incarceration increased recidivism ( $r = -.07$ ), three times more than secure residential at ( $r = -.03$ ). The confidence intervals show the likelihood that the effect sizes are precise and since the two for incarceration sanctions overlap and exceed the .10 width, they are not significantly different or precise in their estimate. However, the result for incarceration did not include 0 so the finding indicates statistical significance for an increase in recidivism. The largest effect for non-incarceration sanctions resulted from non-residential sanctions ( $r = -.16$ ) and the probation sanction ( $r = -.13$ ) followed by intensive probation ( $r = .06$ ), boot camp ( $r = -.04$ ) and community sanctions ( $r = .02$ ). Again, the confidence intervals did not overlap or were they within the .10 width, indicating imprecision and no significance differences. The confidence intervals for boot camps, non-residential and intensive probation did not include 0 demonstrating statistical significance; however, probation did not. The findings for the mean effect sizes (incarceration  $r = -.08$  and non-incarceration  $r = -.06$ ) indicated that incarceration sanctions increased recidivism by 8% whereas non-incarceration decreased recidivism by 6% ( $r = -.06$ ). The confidence intervals did not include the value of 0; therefor indicating statistical significant.

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Table 11

*Mean Effect Sizes: Recidivism Characteristics for Incarceration vs. Non-Incarceration*

| Study Characteristics      | *k | n     | r    | SE  | v   | 95% CI       |
|----------------------------|----|-------|------|-----|-----|--------------|
| <b>Incarceration</b>       |    |       |      |     |     |              |
| Incarceration              | 7  | 1,493 | -.09 | .03 | .00 | -.15 to -.02 |
| Secure Residential         | 2  | 443   | -.03 | .08 | .01 | -.19 to .14  |
| Mean Effect Size           | 9  | 1,936 | -.08 | .03 | .00 | -.14 to -.02 |
| <b>Non-Incarceration</b>   |    |       |      |     |     |              |
| Correctional Boot          | 2  | 416   | -.04 | .04 | .00 | -.13 to .04  |
| Camp                       |    |       |      |     |     |              |
| Community Based            | 2  | 485   | .02  | .05 | .00 | -.07 to .11  |
| Probation                  | 3  | 3,548 | -.13 | .04 | .00 | -.21 to -.04 |
| Intensive Probation        | 1  | 81    | .06  | .22 | .05 | -.35 to .45  |
| Non-residential            | 1  | 2,572 | -.16 | .07 | .00 | -.29 to -.03 |
| Mean Effect Size           | 9  | 7,102 | -.06 | .02 | .00 | -.11 to -.02 |
| <b>Recidivism Measure</b>  |    |       |      |     |     |              |
| Arrest/Charged Police      | 6  | 5,589 | -.07 | .02 | .00 | -.11 to -.03 |
| Conviction                 | 3  | 3,349 | -.07 | .14 | .02 | -.32 to .20  |
| Mean Effect Size           | 9  | 1,936 | -.07 | .02 | .00 | -.11 to -.04 |
| <b>Length of Follow-up</b> |    |       |      |     |     |              |
| 3 – 12 months              | 4  | 6,690 | -.02 | .05 | .00 | -.12 to .09  |
| 13 – 24 months             | 2  | 349   | -.14 | .07 | .00 | -.26 to -.01 |
| 36 + months                | 3  | 1,999 | -.12 | .06 | .00 | -.23 to -.01 |
| Mean Effect Size           | 9  | 9,038 | -.09 | .03 | .00 | -.15 to -.02 |

\*k = the number of effect sizes

The third finding in Table 11 shows that both measures of recidivism, arrests and conviction, resulted in  $r = -.07$ , a low effect but only the CI for effect of recidivism measured by arrest conviction fell under the width of .10 and did not include the 0 value; therefore, that effect size is a precise result and indicated statistical significance. The last effect size included in this category is the follow-up time that researchers used to collect data on recidivism. The middle length from 13 to 24 months had the largest increase of recidivism at 16% ( $r = -.16$ ). The time of 3 to 12 months resulted in the lowest at 2% ( $r = -.02$ ) and over 36 months was closer to the shortest time at 12% ( $r = -.12$ ). The confidence intervals of all three lengths were about the same width with the longer two time frames showing statistical significance by not containing the 0 value. They all overlapped signifying no significance differences. The mean effect sizes for these categories of variables were also computed and are included immediately following the groups. The mean effect sizes were all within .10 of each other with the length of follow-up showing the greatest effect with an increase ( $r = -.09$ ) but still small, followed by incarceration sanctions ( $r = -.08$ ), recidivism measures ( $r = -.07$ ) and non-incarceration sanctions at  $r = -.06$ .

**Mean Effect Sizes: Moderators.** The following findings are results of the analysis grouped by the moderators and the comparison of incarceration's effect across the groups. All results are an outcome of the random effect size design. The sample assignment and the experimental designs of the nine effect sizes are presented in Table 12. The first moderating effect was found for the experimental design of the included studies and as stated above only two of the non-randomized designs had outcomes so they are the only ones included in the table. Both non-randomized designs and the

random design had similar effects with  $r = -.08$ ,  $r = -.07$  and  $r = -.07$  with the non-randomized design with acknowledged difference resulting in the greatest effect at  $r = -.08$ . The largest effect for group assignment resulted from a very high confidence at  $r = -.09$ . The result for the mean effect size indicated a  $r = -.09$  effect while the result for mean effect size of sample assignment had a lower effect at  $r = -.05$ . Regardless of where these results fall in relation to each other, it's important to note that these are still small effects. The results of the confidence intervals (outside the .10 on each side) do not suggest a perfectly clear-cut measure but the findings for non-randomized design with acknowledged differences, the effect size for the experimental design and the effect size for the sample assignment of the studies were within just a few points. These results indicate little variation in the standard error. In addition, both the CIs for the random design and the non-random with differences did not include the value of 0, therefore, indicating statistical significance. The finding for the non-randomized design with strong evidence compared to the other two designs show that the CIs did not overlap indicating significant differences and significance. The intervals for the sample assignment show no overlap indicating no significant differences in the results but the finding for the moderating effect of the very high confidence resulted in the highest increase of recidivism ( $r = -.09$ ). Furthermore, the intervals did include 0 signifying no significance.



Table 12

*Mean Effect Sizes: Methodological Quality for Incarceration vs. Non-Incarceration*

| Methodological Quality  | *k | N     | r    | SE  | v   | 95% CI       |
|---|----|-------|------|-----|-----|--------------|
| Non-Randomized Design, comparison groups have acknowledged differences            | 1  | 2,746 | -.08 | .08 | .01 | -.14 to -.03 |
| Non-Randomized design with strong evidence of initial equivalence                 | 7  | 5,660 | -.07 | .03 | .00 | -.23 to .08  |
| Randomized Design   | 1  | 632   | -.07 | .04 | .00 | -.14 to .01  |
| Mean Effect Size for Design   | 9  | 9,038 | -.08 | .02 | .00 | -.12 to -.04 |
| High (strong inference) Confidence of how Juveniles were assigned to groups       | 3  | 1,710 | -.02 | .04 | .00 | -.09 to .05  |
| Very High (explicitly stated) Confidence of how Juveniles were assigned to groups | 6  | 7,328 | -.09 | .03 | .00 | -.17 to -.00 |
| Mean Effect Size for Sample Assignment  | 9  | 9,038 | -.05 | .03 | .00 | -.10 to .01  |

The next moderators presented are the publication characteristics in Table 13.

The first moderating effect was found for the publication year. The largest effect was

found for the 1970s ( $r = -.26$ ) that was over 3 times the later years and almost twice from the 1990s indicating a medium effect. The lowest effect on recidivism was for the 2000s ( $r = -.01$ ) indicating a very small effect. The confidence intervals for the publication dates of the 1970s, the 2000s and the 2010s did not overlap indicating significance differences. In addition, the effect sizes in the 2000s did not include 0, another indication of statistical significance. The next moderating effect was found for the decade that the data was gathered showing again that the earliest year had more than four times the effect on recidivism than the others and the finding is in the medium range. Again, the interval for the earliest decade, 1969s, does not overlap with any others suggesting significant differences with the later years. It appears that earlier studies show a greater negative effect on recidivism after incarceration. The third moderating effect for publication characteristics found that the confidence intervals for the publication type overlapped indicating no significant differences between whether the study was published or not but more interesting, the findings indicated that the non-published work produced twice the effect ( $r = -.16$ ) than the published works ( $r = -.06$ ). The fourth moderating effect for publication characteristics found that an author's affiliation with a state agency had almost twice the effect on recidivism with an  $r = -.11$  than an affiliation with both a university ( $r = -.06$ ) and a federal agency ( $r = -.06$ ). All of the confidence intervals overlapped indicating that there were no significant differences between the effect sizes but university and state affiliation did not include 0, indicating statistical significance.

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Table 13

*Mean Effect Sizes: Publication Characteristics for Incarceration vs. Non-Incarceration*

| Characteristic               | *k | n     | r    | SE  | v   | 95% CI       |
|------------------------------|----|-------|------|-----|-----|--------------|
| <b>Publication Decade</b>    |    |       |      |     |     |              |
| 1970                         | 1  | 446   | -.26 | .06 | .00 | -.36 to -.15 |
| 1990                         | 1  | 157   | -.16 | .07 | .00 | -.29 to -.03 |
| 2000                         | 5  | 4,627 | -.01 | .04 | .00 | -.08 to .06  |
| 2010                         | 2  | 3,808 | -.08 | .04 | .00 | -.15 to -.01 |
| Mean Effect Size             | 9  | 9,038 | -.09 | .02 | .00 | -.13 to -.01 |
| <b>Decade Gathered</b>       |    |       |      |     |     |              |
| 1960                         | 1  | 446   | -.26 | .06 | .00 | -.36 to -.15 |
| 1990                         | 2  | 293   | .03  | .08 | .01 | -.12 to .19  |
| 2000                         | 6  | 8,299 | -.05 | .04 | .00 | -.13 to .02  |
| Mean Effect Size             | 9  | 9,038 | -.10 | .03 | .00 | -.15 to -.04 |
| <b>Publication Type</b>      |    |       |      |     |     |              |
| Journal/Published            | 8  | 8,846 | -.06 | .04 | .00 | -.13 to .01  |
| Working                      | 1  | 192   | -.16 | .07 | .00 | -.29 to -.03 |
| Mean Effect Size             | 9  | 9,038 | -.08 | .03 | .00 | -.14 to -.02 |
| <b>Author Affiliation</b>    |    |       |      |     |     |              |
| University                   | 7  | 5,789 | -.06 | .04 | .00 | -.14 to .01  |
| State Agency                 | 1  | 3,092 | -.11 | .02 | .00 | -.14 to -.08 |
| Federal Agency               | 1  | 157   | .06  | .22 | .05 | -.35 to .45  |
| Mean Effect Size             | 9  | 9,038 | -.10 | .02 | .00 | -.13 to -.07 |
| <b>Type of Funding Agent</b> |    |       |      |     |     |              |
| State Funded                 | 6  | 6,955 | -.04 | .05 | .00 | -.14 to .05  |
| Federally Funded             | 2  | 1,367 | -.15 | .11 | .01 | -.34 to .05  |
| Not Reported                 | 1  | 716   | -.03 | .04 | .00 | -.11 to .04  |
| Mean Effect Size             | 9  | 9,038 | -.05 | .03 | .00 | -.10 to .01  |
| <b>Geographical Location</b> |    |       |      |     |     |              |
| United States                | 7  | 7,876 | -.05 | .04 | .00 | -.12 to .03  |
| Australia                    | 2  | 1,162 | -.14 | .11 | .01 | -.37 to .08  |

Table 13 Continued

| Characteristic   | <i>k</i> | N     | <i>r</i> | <i>SE</i> | <i>v</i> | 95% CI      |
|------------------|----------|-------|----------|-----------|----------|-------------|
| Mean Effect Size | 9        | 9,038 | -.06     | .04       | .00      | -.13 to .02 |

\**k* = the number of effect sizes

The next moderating effect presented in Table 13 was found for the type of funding that financed each study and the effects indicate no significant differences as with the author’s affiliation between the funding agents due to the overlapping confidence intervals but differently, they all included the 0 value, resulting in no significance. The results for the effects on recidivism are similar as well to the effects of the author’s affiliation showing that the federally funded studies had a greater effect ( $r = -.15$ ) than state funded ( $r = -.04$ ). The last moderating effect in this table was found for the geographic location where the study was conducted. The confidence intervals overlapped for the two locations and included 0 indicating no significant differences between the effects on recidivism but show that the two studies from Australia had a much greater effect, increasing recidivism ( $r = -.14$ ) almost three times greater than the seven studies conducted in the United States ( $r = -.05$ ). The last note for the publication characteristics is the finding for the confidence intervals: they both included 0, overlapped and were out of the range of .10 width indicating that the results were not precise measurements and not significant.

The mean effect sizes for the demographic characteristics for incarceration and non-incarceration sanctions are presented in the next table, Table 14. The first demographic with a moderating effect is the age of the juveniles. The confidence intervals for all the age groups overlapped showing no significant differences; however,

all but the group 13 to 16 years did not include 0 suggesting statistical significance. The findings for the over 16 group and the 10 to 13-year group were within the .10 width indicating a more precise measure than the other age group. Besides the missing group, the youngest group of juveniles had a greater effect ( $r = -.11$ ) than the other two ( $r = -.03$  and  $r = -.05$ ) on recidivism increasing by 11%, even though all the findings are considered low effects. Although it is not in the realm of this study, this supports the research that juveniles do decrease recidivism with age. The second moderating effect was found for the gender of juveniles resulting in the confidence intervals all overlapping indicating no significant differences between the effects for gender and both categories reporting age did not include 0. It must be noted also that all of the studies were predominantly male and the studies with over 95% males had a greater effect ( $r = -.10$ ) than those with males and females ( $r = -.03$ ) but again both effects are in the low ranges. The third sample characteristic is the moderating effect of race on recidivism. Neither of the groups, the over 60% white group and the mixed with none over 60% group produced large or even medium effects. The over 60% white group had the lowest effect ( $r = -.04$ ) and the mixed group had just a little greater effect but still considered in the low category ( $r = -.06$ ). The confidence intervals overlapped but the group not showing over 60% for any group did not include 0 meaning that group was statistically significant but neither effect indicated significant differences in the effects on recidivism.

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Table 14

*Mean Effect Sizes: Demographic Characteristics for Incarceration vs. Non-Incarceration*

| Offender Characteristic | *k | N     | <i>r</i> | <i>SE</i> | <i>v</i> | 95% CI       |
|-------------------------|----|-------|----------|-----------|----------|--------------|
| Age of Offenders        |    |       |          |           |          |              |
| 10 to 13 years          | 1  | 3,092 | -.11     | .02       | .00      | -.14 to -.08 |
| 13 to 16 years          | 3  | 3,095 | -.03     | .09       | .01      | -.21 to .15  |
| Over 16                 | 4  | 2,405 | -.05     | .02       | .00      | -.09 to -.01 |
| Missing                 | 1  | 446   | -.26     | .06       | .00      | -.36 to -.15 |
| Mean Effect Size        | 9  | 9,038 | -.09     | .01       | .00      | -.12 to -.06 |
| Gender of Offenders     |    |       |          |           |          |              |
| 52-95% Males            | 5  | 7,632 | -.03     | .04       | .00      | -.12 to .06  |
| Over 95% Males          | 3  | 1,214 | -.10     | .08       | .00      | -.26 to .05  |
| Missing                 | 1  | 192   | -.16     | .07       | .00      | -.29 to -.03 |
| Mean Effect Size        | 9  | 9,038 | -.08     | .03       | .00      | -.14 to -.01 |
| Race of Offender        |    |       |          |           |          |              |
| Over 60% White          | 6  | 7,039 | -.04     | .05       | .00      | -.13 to .05  |
| Mixed-None over 60%     | 2  | 1,553 | -.06     | .03       | .00      | -.11 to -.01 |
| Missing                 | 1  | 446   | -.26     | .06       | .00      | -.36 to -.15 |
| Mean Effect Size        | 9  | 9,038 | -.08     | .02       | .00      | -.25 to -.08 |
| Type of Offender        |    |       |          |           |          |              |
| All                     | 5  | 5,022 | -.09     | .03       | .00      | -.16 to -.03 |
| Sexual                  | 1  | 192   | -.16     | .07       | .00      | -.29 to -.03 |
| Violent                 | 2  | 1,078 | .06      | .03       | .00      | -.11 to .01  |
| Missing                 | 1  | 2,746 | .06      | .02       | .00      | .02 to .09   |
| Mean Effect Size        | 9  | 9,038 | -.00     | .01       | .00      | -.03 to .03  |

\*k = number of effect sizes

The last moderating effect presented in Table 14 was found for the type of offender studied. The effect size for the study on sexual offenders was greatest indicating

a 16% increase in recidivism ( $r = -.16$ ) whereas the ones that focused on all offenders ( $r = -.09$ ) showed a 9% increase and violent offenders indicted a 6% decrease ( $r = .06$ ). However, the confidence intervals for violent offenders did include the value of 0 so it was not statistically significant. The confidence intervals overlapped indicating that the differences between the types of offenders was not significant; nevertheless, the CIs for sexual offenders and all other offenders included the 0 value indicating that the findings were statistically significant. In addition, it is worth noting that the confidence intervals were wider than the .10 for precision and the finding for violent offenders is the only group in all the demographics that found a decrease in recidivism following non-incarceration (6%).

Table 15 presents the last of the mean effect sizes for the moderating variables and what some researchers and experts consider the most important moderator towards juvenile recidivism. Unfortunately, there was such a large amount of missing data on sentence length that this must be included when making any conclusions. Almost half of the studies (44.4%) did not report the length of stay for the juveniles incarcerated and over 70% did not report the length for non-incarcerated juveniles. All results were reported as mean lengths of stay in months and these results of the effects of length of stay on recidivism are presented in Table 15. The confidence intervals for time incarcerated for juveniles were not within the .10 desired width except for the term of 18 to 20 months, which in addition to the term of 15 to 18 months showed a decrease in recidivism of ( $r = .06$ ). The shorter lengths of stay indicated increases in recidivism of 2% and 5% ( $r = -.02$ ,  $r = -.05$ ). Also interestingly, all of the effect sizes were within a few points from each other and the mean effect size finding was within the .10 width

indicating a precise measure but did include the 0 value, indicating no statistical significance. The second moderating effect of the length of stay for juveniles not incarcerated is missing so many that the results cannot be considered strong towards the effect on recidivism. Of the studies that reported sentence lengths for non-incarcerated sanctions (2), the 15 to 18-month sentence and the 6 to 9 months sentence both resulted in a decrease of 6%, but only the shorter sentence resulted with the interval within the .10 width and did not include 0. This finding indicated statistical significant and a precise estimate for the sentence of 6-9 months. An interesting finding for the effect sizes showed that the shortest sentence had opposite effects for incarceration and non-incarceration. Recidivism increased for incarcerated juveniles, but decreased for non-incarcerated juveniles. This was a positive result indicating that non-incarceration sanctions had a stronger effect on recidivism for that group than incarceration.



Table 15

*Mean Effect Sizes: Length of Stay for Incarceration vs. Non-Incarceration*

| Sanction         | * <i>k</i> | <i>n</i> | <i>r</i> | <i>SE</i> | <i>v</i> | 95% CI       |
|------------------|------------|----------|----------|-----------|----------|--------------|
| Incarcerated     |            |          |          |           |          |              |
| 6 to 9 months    | 2          | 852      | -.02     | .03       | .00      | -.09 to .04  |
| 10 to 12 months  | 1          | 921      | -.05     | .03       | .00      | -.12 to .01  |
| 15 to 18 months  | 1          | 157      | .06      | .22       | .05      | -.35 to .44  |
| 18-20 months     | 1          | 2,746    | .06      | .02       | .00      | .02 to .09   |
| Missing          | 4          | 4,362    | -.14     | .04       | .00      | -.20 to -.07 |
| Mean Effect Size | 9          | 9,038    | -.00     | .01       | .00      | -.03 to .02  |
| Non-incarcerated |            |          |          |           |          |              |
| 6 to 9 months    | 1          | 2,746    | .06      | .22       | .00      | .02 to .09   |
| 15 to 18 months  | 1          | 157      | .06      | .02       | .00      | -.35 to .45  |
| Missing          | 7          | 6,135    | -.09     | .03       | .00      | -.14 to -.04 |
| Mean Effect Size | 9          | 9,038    | .01      | .02       | .00      | -.02 to .04  |

**Mean Effect Size: Incarceration vs. Non-Incarceration.** The final result presented for this study is in Table 16 illustrating the finding for the mean effect size for incarceration versus non-incarceration on recidivism. The finding indicates a negative relationship between incarceration and recidivism ( $r = -.07$ ,  $SE = .04$ ,  $v = .00$ ,  $CI = -.14$  to  $.00$ ). Incarceration was found to increase criminal behavior by 7% ( $r = -.07$ ); however, the results do not indicate statistical significance due to the value of 0 included in the confidence interval. Additionally, the confidence interval was not within the .10 desired width but was only .04 from a precise result. As mentioned in Chapter 3, a result outside the interval is not always insignificant and even small effect sizes in meta-analysis should not be disregarded.

Table 16

*Mean Effect Sizes: The Random Effect Size Model for Incarceration vs. Non-Incarceration*

| Model                               | N     | <i>r</i> | <i>Wt r</i> | <i>SE</i> | <i>v</i> | 95% CI      |
|-------------------------------------|-------|----------|-------------|-----------|----------|-------------|
| Incarceration vs. Non-Incarceration | 9,038 | -.54     | -.07        | .04       | .00      | -.14 to .00 |

**Conclusion**

This chapter presented the results of the systematic review and meta-analysis on the effectiveness of incarceration on juvenile recidivism. The results of descriptive analyses were presented on the publication characteristics, the demographics, the quality of the studies, the length of sentence, recidivism measures, and the types of sanctions. The results of the *Q* test for homogeneity and Orwin’s *fail-safe N* test for publication bias were also presented. The mean effect sizes were found on the above independent variables and moderating variables and presented in the last half of the tables. The results of the mean effect sizes of the moderators and the independent variables indicated a negative effect on recidivism that is discussed in depth in Chapter 5.

**CHAPTER 5: DISCUSSION, RECOMMENDATIONS, AND POLICY  
IMPLICATIONS**

**Introduction**

The United States remains the country with the highest incarceration rate with juveniles being incarcerated at a faster rate than adults (Pew Center on the States, 2009; Sickmund & Puzzanchera, 2014). The juvenile arrest rate has declined and specifically juvenile violent crime by 14% between 2001 and 2011 but harsher penalties continue to be utilized for all juvenile criminal behavior (Mauer & Epstein, 2012). Harsher penalties and transfer to adult court are the justice system's current responses to the violent and most serious of youth. According to research, reducing recidivism remains a main goal, regardless if incarceration works or not, and research indicates that harsher sanctions especially incarceration are harmful to juveniles, increase criminal behavior and do not reduce juvenile crime (Grunwald et al., 2010; Lipsey, 2009; (Mallet, 2009; Mears et al., 2011; Mulvey, 2011; Schubert et al., 2010).

There were four research questions that guided this systematic review and meta-analysis. 1) Is a juvenile offender less likely to reoffend if given a sanction of incarceration? 2) Is a juvenile offender less likely to reoffend if given an alternate sanction from incarceration? 3). What are the differences if any in recidivism rates according to length of time in placement for juveniles after incarceration and after other sanctions? 4) Does the current criminal justice system's get tough policies work to deter juvenile reoffending? This researcher began this project with the desire to research and

combine studies on juvenile recidivism in order to allow policy makers, legislators, and law enforcement officers one central location of all research. The systematic review is a result of that search that began prior to the completion of the literature review in Chapter 2. Although there is an abundance of research discussing recidivism rates for juveniles (some of the most recent and relevant studies are included in Chapter 2), there is limited research that actually used experimental design to compare rates between incarceration and other sanctions that can be included in a meta-analysis. There were only nine studies that met that criteria, and the results from those nine studies were compared with the prior research. The conclusions with the answers to the above research questions follow the discussion on moderators.

### **Moderating Variables**

Gender, age, race, and offender type were discussed in many of the studies in Chapter 2 on how moderators effected recidivism rates. This study and prior studies (Blackburn et al., 2007; Hockenberry & Puzzanchera, 2014; Trulson et al., 2005) agree that gender and race are not equally represented in the juvenile justice system. The samples in this meta-analysis reported a majority of male offenders were associated with an increase in recidivism after incarceration. Eighty-nine percent of the studies in this review were over 50% male and 30% were predominantly male. The results from Winokur et al. (2001) and Ryan et al. (2014) were similar to each other and this study that males were more likely than females to recidivate after incarceration. The data from Chapter 4 show that larger percentages of males were incarcerated and recidivated post-release: males following incarceration were more likely to recidivate than after less restrictive sanctions.

Not all studies in the literature review, but most of the samples in the current study (89%) reported race. Ryan et al. (2014) and Winokur et al. (2008) reported the same results that African American males were more likely to recidivate following incarceration but their findings were not the same as this study. Most of the samples included in this meta-analysis consisted of mostly whites and a small percentage were a mixed number of races but all were associated with an increase in recidivism post-incarceration. Because the samples in this review were predominately white, a conclusion regarding whether or not race impacts recidivism rates following incarceration is not possible from this results alone. More research is needed with more diverse samples.

All but one of the studies in the literature review, that reported age, reported the same result as this study on how age effected recidivism. Elliott (1994), Holman and Ziedenberg (2006), and Mulvey and Schubert (2012) reported that recidivism rates for juveniles decrease regardless of the sanction and more from the product of aging out of the system. Kempinen and Kurlycheck (2003) and Winokur et al. (2001) found that the younger the offenders were the more likely they were to offend. This study found the same as the formers, younger juveniles ages 10- 13 years old were more likely to reoffend after incarceration than youth over 16. In contrast, Lattimore et al. (2004) found that older juveniles have higher arrest frequency but it's unclear if they were convicted. As a result of measuring age and recidivism, the evidence is clear that juveniles reduce their offending as they get older.

When measuring recidivism rates, the type of offender could dramatically effect outcomes and researchers should be encouraged to include if available. Most of the

samples in the prior research included the type of offender, the same as this study; however, most studies did not compare recidivism with any one specific offender. Five of the studies in the literature review specified offender type and two in this analysis. Lattimore et al. (2004) and Trulson et al. (2005) found that violent and serious juveniles were more likely to reoffend after any sanction. Trulson et al. (2011), Haerle (2014), and Trulson et al. (2012) found that violent offenders were more likely to recidivate following incarceration than any other type of offender. This research found a completely different result: violent offenders were deterred more after incarceration than any other type of offender and in fact were the only ones who reduced recidivism. The rate of recidivism for sexual offenders following incarceration increased, indicating that incarceration had a different effect depending on the type of offender incarcerated. Even though it is out of the realm of this study, the differences could be attributed to the type of content or intervention offered to the specified offender.

From the 14 moderators compared in this study, there were 41 separate comparisons of which only five had a positive effect on recidivism following incarceration. All of the confidence intervals for those five were not statistically significant and did not result in significant differences between the other moderators. There was only one moderator found to deter recidivism, the violent offender, but non-incarceration sanctions showed a reduction in re-offending for probation, non-residential and boot camps. It can be surmised that violent offenders reduced recidivism at a higher percentage with probation and the more-restrictive non-incarceration sanction. However, any researcher must be careful to make quick assumptions without knowing the exact offence, the number of prior offences and the demographics. The greatest increase in

recidivism was associated with the year the sample was collected. The number of juveniles incarcerated has dropped since the 1990s and this could be attributed to the decrease in recidivism.

### **Additional Research on Moderating Variables**

A strong methodological quality is needed in all research, but it is important to add that the stronger the methodology, the greater the recidivism rates. This is suggestive of a true increase in recidivism following incarceration. According to the findings in this meta-analysis, the design of the nine studies and the procedure for assigning juveniles to the sample groups had little effect on the reported recidivism rates; nonetheless, all the mean effect sizes were negative. It is worth pointing out that the earlier study, (Coates et al., 1978), in the 1970s compared to studies after 2000s had a higher percentage of recidivism after incarceration.

### **RQ: #1. Is a juvenile offender less likely to reoffend if given a sanction of incarceration?**

The results of this dissertation found that the sanction of incarceration was associated with an increase in recidivism, allowing the assumption that an offender is not less likely to reoffend following incarceration. All of the studies in the literature review that reported recidivism rates following incarceration had the same results as this study. Andrews et al. (1990), Winokur et al. (2002), Mulder et al. (2011), Mulley and Schubert (2012), and Stahlkopf et al. (2010), along with this study found that incarceration does not deter juvenile offending. The results of this dissertation found that incarceration was associated with an 8% increase in recidivism and that non-incarceration with a 6% decrease. Incarceration and secure residential were subgroups of traditional incarceration

with traditional incarceration and secure residential increasing recidivism. Moreover, these results were statistically significant as shown by the confidence intervals. The juveniles in the three studies on blended sentencing, Trulson et al. (2011), Haerle (2014), and Caudill et al. (2012), increased recidivism after their release. Lipsey (2009), Lowenkamp et al., (2010), and Andrews et al. (1990) found that incarceration only works to reduce recidivism when combined with clinical interventions. That outcome is out of the realm of this research as programs were not the focus and the studies included did not report any programs. Depending on how long after incarceration recidivism was evaluated, the results could be impacted. The longer the juvenile was out of placement, the more likely he or she was to re-offend. Bottcher and Ezell (2005) and Mulvey and Schubert (2012) collected recidivism data seven years after placement, and Haerle (2014) collected for two to four years after. This study only coded follow-up until 36 months and over; therefore, it is only clear that these results were the same as the latter study. Recidivism was the highest, not for the longest time frame of over three years but for the middle time frame of 13 to 24 months. Both the longer time frames were over five times the rate for 3 to 12 months. This suggest that juveniles released from incarceration increase their recidivism the longer they have been back in the community. Continued supervision might reduce those numbers.

**RQ# 2: Is a juvenile offender less likely to reoffend if given an alternate sanction from incarceration?**

This dissertation compared the non-incarceration sanctions of correctional boot camps, community based sanctions, probation, intensive probation, and non-residential sanctions, and the results support the use of non-incarceration to deter further offending.



According to the results of this study, juveniles are less likely to reoffend following less intensive sanctions. None of the studies on boot camps, Bottcher and Ezell (2005), Steiner and Giacomazzi (2007), or Kempinen and Kurlychek (2003) found statistically significant results that boot camps reduced recidivism. This is supported by the results of this dissertation; the results for boot camps were not statistically significant or did they represent a precise estimate. Bottcher and Ezell (2005) and Steiner and Giacomazzi (2007) compared boot camps to probation and found that probation reduced recidivism at a higher rate than boot camps. That finding is further supported by this researcher's results. Kempinen and Kurlychek (2003) compared boot camps with incarceration and did not find any significant differences in recidivism. The results from this study on probation did not indicate a precise estimate but were statistically significant. In addition, probation had one of the strongest positive relationships with recidivism with a 12% decrease. The results found by Mulvey and Schubert (2012) showed that recidivism rates for juveniles following incarceration and after community probation had the same rate of arrests post-release. The outcome for this study again supports those prior results; probation and non-residential sanctions resulted in the highest reductions in recidivism and were statistically significant. Again it is important to note that the results for the correlation coefficient were not precise estimates. The rates reported on community based programs from Lowenkamp et al. (2010) and Austin et al. (2005) also added further support as deterrents to recidivism. Unfortunately, the results from this meta-analysis did not support those outcomes. Again it must be noted that the specific programs included in community based programs were not specified in the prior research or within the studies included in this research.

As stated, non-incarceration sanctions, were associated with a 6% reduction in recidivism. Even though that number may appear small, small effects indicate powerful implications (Gendreau & Smith, 2007). This suggests that the more restrictive the placement, the higher the recidivism. Ryan et al. (2014) found that the sanction of non-residential reduced recidivism more successfully than incarceration; this study supports those results and found a decrease of 16% that was statistical significance. This could be attributed to treatment and intervention programs that are usually included in residential programs, probation and boot camps.

A study included in the meta-analysis, but not the literature review, Wiebush (1993), found that probation was a greater deterrent than both intensive probation and incarceration. He also found that intensive probation produced a recidivism rate at 76.5% compared to incarceration at 77.6%; however, this was due to almost twice the number of probation violations compared to both probation and incarceration. The results of this study did not indicate any statistical association between intensive probation but did between probation and recidivism.

### **RQ#3: What are the differences if any in recidivism rates according to length of time in placement for juveniles after incarceration vs. other sanctions?**

The mean effect sizes were calculated for length of stay for incarceration and non-incarceration sanctions. The effects of the majority of samples could not be analyzed due to the large amount of missing data. Seventy-eight percent of the samples did not report length of stay for non-incarceration and 44% of the incarceration samples did not report. It is important to keep this information in mind when determining the answer to the

above research question. A large majority of the prior research as well did not discuss or report the length of stay.

The data from the prior research that included length of stay and the limited data from this study did not conclude the same results. Cottle et al. (2001) and Winokur et al. (2001) reported that length of incarceration was a weak predictor of recidivism and that longer lengths of stay increased recidivism for all types of offenders. Lattimore et al. (2004) found no differences from length of stay on recidivism. Mulvey and Schubert (2012) and Myers (2003) found that longer stays of incarceration did not reduce recidivism. The results of this study were not the same as the prior research. Longer lengths of stay were associated with decreases in recidivism and shorter lengths of incarceration were associated with increases in recidivism. It is important to consider the confidence intervals along with those results. The longer lengths were not significantly different, but the longest time served was both a precise estimate and statistically significant. The two lower lengths of stay were not precise estimates, significantly different, or statistically significant. These results did confirm the first part of the results from Winokur et al. (2006) who found that a sentence between 17 and 20 months was a deterrent from recidivism but they also found that a shorter sentence deterred recidivism too. The lower end of the length also did not confirm prior research. Those results were calculated on the 56% of the samples that reported. It is important to consider that five studies may not be enough to make a conclusive decision on whether or not length of stay negatively or positively effects recidivism after incarceration. Researchers need encouragement to focus on the association between time incarcerated and recidivism.

There were even less non-incarceration samples reported for the length of stay (78%). As concluded above, two studies may not be sufficient to make a conclusion on the effects of length of stay following non-incarceration on juvenile recidivism. Winokur et al. (2006) and this study found the same result for non-incarceration. They found that juveniles considered low to moderate risk were only slightly effected by longer lengths of stay and this study found a small decrease in recidivism for the longer sentences of non-incarceration. This study and Winokur et al. (2006) found the same result, that the shortest stay reduced recidivism and the shorter length was a precise estimate and statistically significant. Policy makers and legislators would benefit from more research on the relationship of length of stay, incarceration, and recidivism.

#### **RQ#4: Do the “Get Tough” Policies work as a Deterrent to Juvenile Recidivism?**

As discussed above and illustrated in the results in Chapter 4, incarceration as a result of the get tough policies does not deter recidivism and in fact increased recidivism by 8%. Recidivism decreased by 6% following non-incarceration sanctions as well as 6% for violent juveniles. This category of offender was the only one that was associated with a decrease. The results of this dissertation confirmed the reports from prior research, Brendtro and Mitchell (2007), Holman and Ziederberg (2006), and Schubert et al. (2010) that the “get tough” policy of increasing punishment and incarceration time to reduce recidivism, does not work. Longer stays in secure confinement for juveniles does not deter crime as shown by increases in crime as the time incarcerated increased. Many non-residential sanctions include treatment programs with a focus on cognitive behavior therapy, aggressive behavior approaches and other forms of rehabilitation; however, according to this research of all experimental studies available, non-residential facilities

were associated with the largest deterrent of juvenile criminal behavior. As supported by the results of this study and by the studies in the literature review, the non-incarceration sanctions that normally include some form of cognitive based programs, decreased recidivism, incarceration increased recidivism and longer sentences increased recidivism translating to a lack of success for the “get tough” policies.

### **Future Recommendations**

It is a misconception that there is an abundance of research on juvenile recidivism rates following incarceration. There are, however, an abundance of studies on juvenile offending and on juvenile recidivism. The experimental method is the most appropriate manner of examining juvenile recidivism and the number examining incarceration for juveniles is scarce. The number of juveniles incarcerated in the United States has dropped over 34,000 since 1997, nonetheless the United States remains the country with the highest incarceration rate (Pew Center on the States, 2009; Sickmund & Puzzanchera, 2014; The Annie E. Casey Foundation, 2013). As of 2013, states were spending from \$90,000 to \$200,000 a year per juvenile incarcerated; a bed in a secure facility can cost over 300 times the cost of intensive probation (Pew, 2015). Individual studies are needed in every state in the United States that measures the recidivism rate of juveniles incarcerated in juvenile facilities as well as adult facilities compared to community supervision. Data also needs to be collected on a national basis for juvenile recidivism rates in this country. Future research needs to include the length of stay as a major focus and not as secondary. Not only are more studies needed that measure the recidivism rates and the effect size of recidivism and other sanctions, but more studies are also needed on the impact moderators have on recidivism. More moderating variables need to be

analyzed on the effect of recidivism between incarceration and non-incarceration to include, socio-economic factors, education, parental involvement, prior offenses, and prior placement. The focus of this dissertation was specifically on incarceration, and in order to measure the true success of incarceration, recidivism rates must be compared to other sanctions through experimental design across all age groups, races, environments, and gender. Furthermore, study replication is imperative in criminal justice research and other researchers need to expand on this research and encourage more experimental studies on juvenile recidivism.

### **Policy Implications**

There are substantial policy implications from the results of this study. Probation and non-residential programs were shown to reduce recidivism at a higher rate at 13% and 16% than other sanctions whereas incarceration increased youth re-offending by 8% in the United States. Non-violent offenders, especially, would benefit from less intensive outcomes and the cost benefits of diversionary programs available in non-incarceration sanctions. Just as the studies in Chapter 2 stated, (Andrews et al., 1990; Caudill et al., 2012; Haerle 2014; Lipsey 2009; Lowenkamp et al., 2010; Mulder et al., 2011; Mulley & Schubert, 2012; Stahlkopf et al., 2010; Trulson et al., 2011; Winokur et al., 2002) that incarceration does not deter recidivism, this dissertation can be used to attack the use of incarceration as a crime control approach for juveniles. Supporters of incarceration should be forced to produce results conclusively that show reductions in recidivism, nationally and by state. Public safety was the rationale behind increasing punishment and confinement to deter and stop juvenile criminal behavior but prior research and this dissertation show empirical evidence that the “get tough” strategy is a failure.

Incarceration is the retributive response to juvenile crime that resembles a crime control model similar to the adult criminal system that does not deter criminal behavior. In order to make decisions regarding juvenile policy and sentencing guidelines, the policy makers, legislatures, and law enforcement need to use the results of this dissertation showing incarceration is associated with an increase in recidivism and non-incarceration with a decrease to change procedure and policy. This is clear evidence that the “get tough” policies do not succeed at their intended purpose. On any given day in the United States, over 70,000 juveniles are incarcerated (Sickmund & Puzzanchera, 2014) even though the results as stated in individual studies and confirmed with this meta-analysis present clear evidence that incarceration increases crime. In addition, as discussed in Chapter 1 and shown in Table 1, delinquency cases processed decreased over 37% from 1995 to 2012; however, the percentage of juveniles petitioned remained between 53% and 57%. This needs to change. Policy makers need to use the evidence from this study that incarceration does not deter crime and turn their attention and financial obligations to less restrictive sanctions that do deter juvenile crime. The current laws on mandatory sentencing guidelines and mandatory waiver to criminal court must be changed. The more restrictive sanctions must be reserved for the violent offender and community based probation and other programs that include supervision and accountability must be the focus for all others. Incarceration costs state and federal governments over 300 times what probation does and increases delinquency (Pew, 2015). By relying on community corrections, the United States’ juvenile justice system can reduce spending while reducing recidivism.

### Resolving Concerns

The systematic review and meta-analysis design receives harsh reviews by certain critics due to potential concerns and possible limitations. Those include the threat of heterogeneity, publication bias, statistical independence, differences in sample sizes, and weak methodological quality and design. The test for heterogeneity found a high Q statistic (61.08,  $p \leq .000$ ) indicating high level of variability due to something other than sampling error alone. Therefore, the random effects model was the most appropriate effects model to use for this study. Publication bias with a meta-analysis is a concern and a potential weakness. In this study the publication bias was tested using the *fail-safe N* statistic. The *fail-safe N* statistic was used to test for the possibility that relevant studies, especially unpublished studies, were omitted in the meta-analysis. The results indicated that 421 additional studies with a mean effect of .00 were needed to reduce the criterion level of the weighted mean effect size to the desired value of 0.001. The likelihood of finding 421 studies with a mean effect of .00 is extremely improbable. This result indicated that publication bias was not a cause for concern in this study.

Another concern of any meta-analyst is ensuring statistical independence of studies and this was addressed by ensuring that every effect size was calculated from an independent sample of juveniles. All of the studies included in this systematic review and meta-analysis calculated recidivism rates from one sample even though some of the studies had multiple interventions (sanctions). Because of the threat of losing statistical independence and negatively impacting the results, it was possible to only calculate one effect size from the 9 studies, leaving 9 effect sizes from 9 studies.



Another weakness faced by this meta-analyst was how the different sample sizes from the studies could have impacted the results. The samples from the studies included in this dissertation ranged from 136 to 3,092. This was addressed by weighing each sample size so that the larger samples had more weight toward the outcome. The larger studies were given greater weight allowing for even distribution of effect.

The studies that met the eligibility criteria for this dissertation were evaluated on methodological quality and design. The type of experimental design was reported and each study was critically evaluated on the evidence of initial equivalence of the samples. One of the studies used a true experimental design with random sampling and the other 8 studies used a quasi-experimental study with non-random assignment of the samples. Seven of the 8 studies were found to have a non-randomized design with strong evidence of initial equivalence; however, the ninth was found to have a non-randomized design with evidence the comparison groups had acknowledged differences.

Also during this systematic review, the studies were evaluated on how the participants were assigned to each sample. There were five categories possible ranging from a very high (strong inference) confidence of how juveniles were assigned to groups to a very low confidence. Three of the studies resulted in high and the other five resulted in a very high confidence. This translated to a very confident feeling by this meta-analyst in how the participants were assigned to samples in all nine studies. Most of the studies used data already collected from official data sets and used all the individual data that were available.

### **Limitations and Delimitations**

This dissertation was built around the systematic review of locating available studies that used an experimental design to compare recidivism rates. The design had to include a treatment group and control group representing the two sanctions being compared, incarceration and non-incarceration. The sample included in the incarceration group must have comprised of juveniles under the age of 18 at the time of adjudication or disposition who were placed in a secure correctional setting with 24-hour supervision. The control group could have consisted of any other sanction besides incarceration that measured recidivism in a measurable design. It was mandatory that studies included in this meta-analysis were reliable in their data reporting, included evidence based practices and met the critical qualitative method requirements.

The majority of the work was accessing search engines, research sources, local academic libraries, government websites, academic journals, experts and researchers in the field, and any other sources found to be relevant to the research. Additional work was completed to locate unpublished studies. The lack of individual experimental studies located was a major delimitation faced by this meta-analyst that actually compared incarceration with other outcomes on juvenile recidivism.

Of the thousands of studies searched in databases and other resources, only nine met the criteria for inclusion. The studies that did meet the criteria included samples that were predominantly white, male juveniles which is not a true representation of the juvenile incarcerated population. "African-American youth are nearly five times as likely to be confined...[and] Latino and American Indian youth are between two and three

times as likely to be confined” (The Annie E. Casey Foundation, 2013, p. 1) as their white counterparts.

The results were limited further by the amount of missing data excluded from the nine studies that met the criteria. As explained in Chapter 4, many moderators were not included in the sample studies so they could not be included in this analysis. Moderators such as prior arrests, prior convictions, prior offenses, education status, environmental factors, parental involvement, socio-economic status and other moderators such as alcohol and drug abuse may be the cause of the high level of variability illustrated by the results of the test for heterogeneity. The random effects model was used because of the high results of the  $Q$  test and the small number of studies but there is no assurance that the variability was due to the moderators included in this study. It is possible that the variability was caused by factors outside the scope of this study or due to control variables included in the individual studies but not reported. The data coded for statistical computations in any meta-analysis is limited to the data collected, calculated and reported by each study’s researchers.

The data reported from the included studies in the meta-analysis also limited comparing the relationship between length of stay and recidivism. Anytime recidivism is the focus of research, the length of stay must be included to not only determine if incarceration deters crime but which time length positively or negatively impacts recidivism. The small percentage of studies that included sentence length limited any conclusive evidence towards policy recommendations or implications.

The final limitation that needs to be addressed is the enormous amount of hands on time and expertise needed for a meta-analysis. Many meta-analysts use a team of

researchers and statisticians to conducted the project. In addition, because a meta-analysis is so time consuming and demanding of an accurate methodology, it is attempted and completed by only a handful of doctoral students. This limits the number of experienced academics available to assist and requires the PhD student to use a high level of self-motivation in locating training videos, seminars, documents and developing expertise.

### **Conclusion**

The research questions guiding this study focused on the problem that the criminal justice system is facing on recidivism rates of juvenile offenders. Studies were synthesized showing a number of new conclusions. First, a sentence of incarceration results in higher recidivism rates for juveniles. Second, alternate sanctions to incarceration produce lower recidivism rates than incarceration and many deter re-offending. Third, more time, energy, and experimental research is desperately needed that compares recidivism rates for juveniles following incarceration, compared with community programs and diversion programs, and females must be specifically included. Fourth, juvenile offending is not deterred by the “get tough” policies of the criminal justice system for the majority of offenders. Fifth, and most important, it is time for policy makers to adhere to the evidence that incarceration increases crime and accept that imprisoning juveniles does not fulfil the promises of reducing crime and increasing public safety. To fulfil the promises to America, focus needs to be on community-based programs, rehabilitation, diversion, and probation.

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APPENDIX A

Checklist for Quality Completion of a Systematic Review and Meta-Analysis

| Section/topic             | #  | Checklist item   | Reported on page # |
|---------------------------|----|--|--------------------|
| <b>TITLE</b>              |    |  |                    |
| Title                     | 1  | Identify the report as a systematic review, meta-analysis, or both.  |                    |
| <b>ABSTRACT</b>           |    |  |                    |
| Structured summary        | 2  | Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; |                    |
| <b>INTRODUCTION</b>       |    |  |                    |
| Rationale                 | 3  | Describe the rationale for the review in the context of what is already known.   |                    |
| Objectives                | 4  | Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).   |                    |
| <b>METHODS</b>            |    |  |                    |
| Protocol and registration | 5  | Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration  |                    |
| Eligibility criteria      | 6  | Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as   |                    |
| Information sources       | 7  | Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date  |                    |
| Search                    | 8  | Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.  |                    |
| Study selection           | 9  | State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).  |                    |
| Data collection process   | 10 | Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.   |                    |

|                                    |          |   |                           |
|------------------------------------|----------|---|---------------------------|
| Data items                         | 11       | List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.                                 |                           |
| Risk of bias in individual studies | 12       | Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this |                           |
| Summary measures                   | 13       | State the principal summary measures (e.g., risk ratio, difference in means).   |                           |
| Synthesis of results               | 14       | Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., $I^2$ for each meta-analysis).              |                           |
| <b>Section/topic</b>               | <b>#</b> | <b>Checklist item</b>   | <b>Reported on page #</b> |
| Risk of bias across studies        | 15       | Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).                          |                           |
| Additional analyses                | 16       | Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.                      |                           |
| <b>RESULTS</b>                     |          |   |                           |
| Study selection                    | 17       | Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.       |                           |
| Study characteristics              | 18       | For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.                          |                           |
| Risk of bias within studies        | 19       | Present data on risk of bias of each study and, if available, any outcome level   |                           |
| Results of individual studies      | 20       | For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and                |                           |
| Synthesis of results               | 21       | Present results of each meta-analysis done, including confidence intervals and  |                           |
| Risk of bias across studies        | 22       | Present results of any assessment of risk of bias across studies (see Item 15).   |                           |
| Additional analysis                | 23       | Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).   |                           |
| <b>DISCUSSION</b>                  |          |   |                           |
| Summary of evidence                | 24       | Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users,      |                           |
| Limitations                        | 25       | Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).         |                           |

|                |    |  |  |
|----------------|----|--|--|
| Conclusions    | 26 | Provide a general interpretation of the results in the context of other evidence, and implications for future research.                    |  |
| <b>FUNDING</b> |    |  |  |
| Funding        | 27 | Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review. |  |

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D.G. (2009).



**APPENDIX B**

**Critical Methodological Review for Evaluating Studies**

Coder Initials: \_\_\_\_\_

**I. STUDY IDENTIFICATION:**

**A. Identification number:** [StudyID] \_\_\_\_\_

**B. Study accepted or rejected? (yes=1; 0=no) (to be completed at the end of the coding**  
 [Included]\_\_\_\_\_

**C. Author(s):** \_\_\_\_\_ **A**

**D. Title of Study:** \_\_\_\_\_ **T**

Note reason why if rejected (add this only if rejected after the review): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

| <b>E. ELIGIBILITY CRITERIA</b>   | <b>YES</b> | <b>NO</b> |
|--|------------|-----------|
| The study evaluated the effects of custodial sanctions for juveniles between the ages of 12 and 18 on recidivism and included a comparison group that received another type of sanction.   |            |           |
| The study reported a post-conviction measure of criminal behavior, such as arrest, conviction or adjudication. The measure may be based on official records or self-reported and may be reported on a dichotomous or continuous scale. |            |           |
|  |            |           |

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| II. METHODOLOGICAL RIGOR ASSESSMENT  |           | N/A | Yes | No | unclear |
|--|-----------|-----|-----|----|---------|
| A. Is the objective/goal of the study clearly stated?  |           |     |     |    |         |
| B. Is the study comparing custodial sanctions with other sanctions?  |           |     |     |    |         |
| C. Are the research questions appropriate for the study?   |           |     |     |    |         |
| D. Are the research questions clearly addressed in the results?  |           |     |     |    |         |
| E. Was ethics Approval Obtained?   | [ethic]   |     |     |    |         |
| F. Is the sample representative of the target population?  | [pop]     |     |     |    |         |
| G. Is the Criteria for including participants/subjects clearly stated?   | [crit]    |     |     |    |         |
| H. Is the Choice of Study method appropriate?  | [Method]  |     |     |    |         |
| I. Is a control group (meaning an experimental study or the group receiving custodial/incarceration) used? (yes=1; no=0)   | [control] |     |     |    |         |
| J. Is a comparison group (meaning the group received some other outcome besides custodial) used?   | [compare] |     |     |    |         |
| K. Were outcomes measured in a reliable way?   | [outcom]  |     |     |    |         |
| L. Was appropriate statistical analysis used?  | [analy]   |     |     |    |         |
| M. Rating of initial group similarity:<br>1. Non randomized design, comparison group likely to be different or known difference that are related to future recidivism<br>2. Nonrandomized design, comparison groups have acknowledged differences<br>3. nonrandomized design with strong evidence of initial equivalence<br>4. Randomized design, large N or small N with matching | [simrate] |     |     |    |         |
| N. Overall confidence of judgement of how juveniles were assigned to groups?<br>1. Very low (little basis)<br>2. Low (guess)<br>3. Moderate (weak inference)<br>4. High (strong inference)<br>5. Very high (explicitly stated)   | [confid]  |     |     |    |         |
| O. Attrition: Were more than 20% of the subjects dropped/rejected/omitted?   | [Attrit]  |     |     |    |         |

\*Yes= 1, No=2, Missing=0

**APPENDIX C**

**Coding Manual**

Coder Initials: \_\_\_\_\_

**I. STUDY IDENTIFICATION:**

A. Identification number: [StudyID] \_\_\_\_\_

B. Study accepted or rejected?  
 (to be completed at the end of the coding) [Included] \_\_\_\_\_  
 1=yes  
 2=no

Note reason why: \_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_

| ELIGIBILITY CRITERIA   | YES | NO |
|--|-----|----|
| The study evaluated the effects of incarceration for juveniles between the ages of 12 and 18 on recidivism and included a comparison group that received another type of sanction.   |     |    |
| The study reported a post-conviction measure of criminal behavior, such as arrest, conviction or adjudication. The measure may be based on official records or self-reported and may be reported on a dichotomous or continuous scale. |     |    |
| Minimum data are reported to calculate an effect size.   |     |    |

Type of Measure used for recidivism: \_\_\_\_\_

Notes:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Author(s): \_\_\_\_\_

Title of Study: \_\_\_\_\_

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|   |  |
|---|--|
| Author affiliation                                  | [affiliation] _____<br>1 = University<br>2 = State agency<br>3 = Federal agency<br>4 = Mixed<br>5 = Other<br>99 = Missing                              |
| Author Discipline                                   | [discipline] _____<br>1 = Criminal Justice/Criminology<br>2 = Psychology<br>3 = Sociology<br>4 = Social Work<br>5 = Mixed<br>6 = Other<br>99 = Missing |
| Publication year:                                   | [pubyear] _____  |
| Decade:   | [pubdecade] _____<br>1=1980<br>2=1990<br>3=2000<br>4=2010  |
| Geographic location of study:                       | [Geolocation] _____<br>1 = USA<br>2 = Canada<br>3 = England<br>4 = Australia<br>5 = New Zealand<br>6 = Other<br>99 = Missing                           |
| The project was executed/data were gathered (year): | [start] _____<br>[finish] _____  |
| Decade data gathered                                | [decadegath] _____<br>1 = 1980-1989<br>2 = 1990-1999<br>3 = 2000-2009<br>4 = 2010-2019<br>99 = Missing   |
| Status of Publication                               | [pubstat] _____<br>1=Published<br>2=Unpublished<br>3=In press  |
| Publication type:                                   | [pubtyp] _____<br>1= Book<br>2= Book chapter<br>3 = Federal report<br>4 = State or local report  |

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|  |  |
|--|--|
|  | <p>5 = Conference paper<br/>         6= Journal<br/>         7 = Thesis/Dissertation<br/>         8= Other</p>   |
| Rating of initial group similarity:  | <p>[simRate] _____</p> <p>1 = Non randomized design, comparison group likely to be different or known difference that are related to future recidivism<br/>         2 = Nonrandomized design, comparison groups have acknowledged differences<br/>         3 = nonrandomized design with strong evidence of initial equivalence<br/>         4 = Randomized design, large N or small N with matching</p> |
| Is a control group (meaning an experimental study group of incarcerated juveniles) used? | <p>[Control] _____</p> <p>1= YES<br/>         2= NO</p>  |
| Is a comparison group (meaning a group that received another type of sanction) used?     | <p>[compare] _____</p> <p>1= YES<br/>         2= NO</p>  |
| Is Attrition more than 20 percent in each group?   | <p>[Attrit] _____</p> <p>1= YES<br/>         2=NO</p>  |

|  |  |
|--|--|
| Number of different groups compared in this report           | [mods] _____   |
| Is the same control group used in different contrasts?       | <p>[same_cg] _____</p> <p>1= YES<br/>         2= NO</p>  |
| Is this study comparing incarceration with another sanction? | <p>[purpose] _____</p> <p>1= YES<br/>         2= NO</p>  |
| Is this study comparing sentencing lengths?                  | <p>[purpose2] _____</p> <p>1= YES<br/>         2= NO</p>   |
| Is this study comparing the conditions of confinement?       | <p>[purpose3] _____</p> <p>1= YES<br/>         2= NO</p>   |
| <b>Sample Demographics</b>                                   |  |
| What is his or her current offense? Adjudicated offense      | <p>[offense]</p> <p>1 = Drug offenses<br/>         2 = Sexual offenses<br/>         3 = Violent offenses</p> |

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|   |   |
|---|---|
|   | <p>4 = Property Offenses<br/>                     5 = DUI offenses<br/>                     6 = Domestic violence offenses<br/>                     7 = Other (specify<br/>                     99 = unknown</p>  |
| Number of prior offenses.   | <p>[prioroff]<br/>                     List number</p>  |
| Number of prior incarcerations  | <p>Priorincarc<br/>                     List the number</p>   |
| Age:<br>Mean age for whole sample<br>Mean age for incarcerated group<br>Mean age for non-incarcerated group   | <p>[meanage] _____<br/>                     [meanageincarc] _____<br/>                     [meanagenonincarc] _____</p>   |
| Gender for incarcerated sample  | <p>[gender1] _____<br/>                     1= &lt;5% male<br/>                     2= 5%-49% male<br/>                     3= 50% male<br/>                     4= 51%-95% male<br/>                     5= &gt;95% male<br/>                     99 = Cannot tell</p> |
| Gender for nonincarcerated sample   | <p>[gender2] _____<br/>                     1= &lt;5% male<br/>                     2= 5%-49% male<br/>                     3= 50% male<br/>                     4= 51%-95% male<br/>                     5= &gt;95% male<br/>                     99 = Cannot tell</p> |
| Percent of males for whole sample<br>Percent of males for incarcerated sample<br>Percent of males for nonincarcerated sample<br>Percent of females for incarcerated sample<br>Percent of females for nonincarcerated sample | <p>[Malessamp] _____<br/>                     [malesincarc] _____<br/>                     [malesnonincarc] _____<br/>                     [femincarc] _____<br/>                     [femnonincarc] _____</p>  |
| EDUCATION   |   |
| Percent with at least HS diploma or GED for whole sample  | [edusamp] _____   |
| Percent with HS/GED for non incarcerated  | [edunonincarc] _____  |
| Percent for HS/GED for incarcerated   | [eduincarc] _____   |
| Average grade completed   | Avggrade  |
| RACE  |   |
| Race Of whole sample  | <p>[Race] _____<br/>                     1 = &gt;60% white<br/>                     2 = &gt;60% black<br/>                     3 = &gt;60% Hispanic<br/>                     4 = &gt;60% other minority</p>   |

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|   |   |
|---|---|
|   | <p>5 = Mixed, none more than 60%</p> <p>6 = Mixed, cannot estimate</p> <p>99 = Cannot tell</p>  |
| Race for incarcerated sample  | <p>[Raceincarc]_____</p> <p>1 = &gt;60% white</p> <p>2 = &gt;60% black</p> <p>3 = &gt;60% Hispanic</p> <p>4 = &gt;60% other minority</p> <p>5 = Mixed, none more than 60%</p> <p>6 = Mixed, cannot estimate</p> <p>99 = Cannot tell</p> |
| Race for non-incarcerated sample                                      | <p>[Racenon]_____</p> <p>1 = &gt;60% white</p> <p>2 = &gt;60% black</p> <p>3 = &gt;60% Hispanic</p> <p>4 = &gt;60% other minority</p> <p>5 = Mixed, none more than 60%</p> <p>6 = Mixed, cannot estimate</p> <p>99 = Cannot tell</p>    |
| <b>CONTENT OF COMPARED SANCTIONS</b>                                  |   |
| Non-incarcerated sanction(s) Write in the different type of sanctions | <p>_____</p> <p>_____</p> <p>_____</p>  |
| Mean Length of stay in non-incarcerated sanction                      | <p>[Timenonincarc] _____</p> <p>In months</p>   |
| Incarcerated sanction(s): write in the different type of sanctions    | <p>_____</p> <p>_____</p> <p>_____</p>  |
| Mean Length of stay in incarcerated sanction                          | <p>[timeincarc]_____</p> <p>in months</p>   |
| <b>SIZE AND COMPOSITION OF THE SAMPLE</b>                             |   |
| Non incarcerated group size N=  | Subjects: [sizenoninc]_____   |
| Incarcerated group size N=  | <p>Subjects</p> <p>Subjects [sizeinc]_____</p>  |

[size2a] \_\_\_\_\_

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| <b>OUTCOME INFORMATION</b>  |  |
|---|--|
| Recidivism construct represented by this measure?<br>Arrest/charged by police                               | 1 = arrest<br>2 = conviction<br>3 = reincarceration<br>4 = parole technical violation<br>5 = contact with court<br>6 = mixed<br>7 = other indicator  |
| Are they on post-release supervision  | 1=YES 2=NO<br><br>[postsup] ____   |
| Were they involved in any post-release program  | 1 = YES 2 = NO<br>postprog   |
| Specify types of offenses included in recidivism measure:   | 1 = All offenses<br>2 = Drug offenses<br>3 = Person offenses-sexual<br>4 = Personal offenses-nonsexual<br>5 = Property offenses<br>6 = DUI offenses<br>7 = Domestic violence offenses<br>8 = other |
| Type of measurement scale   | 1 = Dichotomy<br>2 = Tricotomy<br>3 = Four or more discrete ordinal<br>4 = categories<br>5 = Count measure<br>6 = Survival measure   |
| Source of Data  | 1 = Self report<br>2 = Official record<br>3 = Other (specify):<br>4 = Cannot tell  |
| Length of follow-up period (months):<br>Minimum<br>Maximum<br>Mean length_<br>Fixed (same for all subjects) | In months<br>[length1] _____<br>[length2] _____<br>[Length3] _____<br>[Length4] _____  |

| <b>EFFECT SIZE DATA</b>                   |                   |
|---|-------------------|
| Means and standard deviation (recidivism) |                   |
| Non-incarcerated sanction group mean      | [ESmeannon] _____ |



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|   |  |
|---|--|
| Incarceration group mean<br>Non-incarcerated sanction group standard<br>deviation<br>Incarceration group standard deviation   | [ESmeanincarc] _____<br>[ESstdevnon] _____<br>[ESstdevincarc] _____  |
| Proportion (recidivism)<br>Proportion of incarcerated group that<br>recidivated<br>Proportion of non-incarcerated group that<br>recidivated                                   | [ES_prop1] _____<br>[ES_prop2] _____   |
| Survival time (in months)<br>Mean survival time of the incarcerated<br>sanction group before recidivism<br>Mean survival time of non-incarceration<br>group before recidivism | [ES_surv1] _____<br>[ES_surv2] _____   |
| Odds ratio (logistic regression) not being<br>arrested/being arrested<br>Calculated for the incarcerated group<br>Calculated for the non-incarcerated group                   | [ES_oddsnon1] _____<br>ES_oddsinc2]_____   |
| Incidence rate (recidivism)<br>Incidence rate of incarcerated group<br>Incidence rate of non-incarceration group  | [ES_non1]<br>[ES_inc2]   |
| Use of statistical significance test  | [SigTest] _____<br>1=YES<br>2=NO   |
| Direction of predictor  | [Es_dir] _____<br><br>1 = equal recidivism rates<br>2 = experimental > compare<br>3 = experimental < compare   |
| Type of statistical test  | [ES_test] _____<br>1 = t-test<br>2 = F-test<br>3 = Chi square<br>4 = OLS regression<br>5 = WLS regression<br>6 = LISERAL/path analysis<br>7 = ARIMA/time series<br>8 = Nonlinear models<br>9 = Stepwise regression |

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|                        |  |
|------------------------|--|
|                        | 10 = Odds ratio<br>11 = Incidence rate<br>12 = Mean change<br>13 = Descriptive statistics<br>14 = Other __ |
| Calculated Effect Size | [ESSIZE] __  |

**APPENDIX D**

**Letter Sent to Experts**

Date

J. Anita Black  
765 Liberty Church Road  
Kingsport, TN

RE: Research on Juvenile Recidivism

Dear

My name is Anita Black and I am a doctoral student in criminal justice at Nova Southeastern University. I am contacting you today because I am working on my dissertation for my PhD and I am conducting a systematic review and meta-analysis on the effectiveness of incarceration on juvenile recidivism.

I respect your research and have referenced a number of your studies in my research. I read that one of your research focuses is on \_\_\_\_\_ so I wanted to reach out and see if you have completed any research or know of anyone that has conducted research on recidivism after incarceration, either published or unpublished.

Any information would be greatly appreciated. Please feel free to contact me via my email [jb2938@nova.edu](mailto:jb2938@nova.edu) or by phone 423-483-7850.

Thank you for your time and assistance,

Anita Black

APPENDIX E

IRB Letter of Exemption



NOVA SOUTHEASTERN  
UNIVERSITY

MEMORANDUM

To: **Jaqueline Anita Black, PI**  
**Department of Justice & Human Services**  
**College of Arts, Humanities & Social Sciences**

From: **Nurit Sheinberg, Ed.D.**  
**College Representative, Institutional Review Board**

Date: **10/2/2015**

Re: **IRB#: MSC2015-1, Title, "Understanding the Effectiveness of Confinement on Juvenile Offending through Systematic Review and Meta-Analysis: Do the "Get Tough" Policies work? "**

---

Based on the information provided, your protocol does not require IRB review or approval because its procedures do not fall within the IRB's jurisdiction based on 45 CFR 46.102. Therefore, your protocol has been classified as "Non-Human Subjects Research" for IRB purposes; your study may still be classified as "research" for academic purposes or for other regulations, such as regulations pertaining to educational records (FERPA) and/or protected health information (HIPAA).

This protocol does not involve "human subjects research" for one of the following reasons:

- (a) The study does not meet the definition of "*research*", as per federal regulations: "*research*" means a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge.
- (b) The study does not involve "*human subjects*," per federal regulations. "*Human subject*" means a living individual about whom an investigator conducting research obtains:
  - (1) Data through intervention or interaction with the individual, or
  - (2) Identifiable private information.
- (c) Other:

Please retain a copy of this memorandum for your records as it indicates that this submission was reviewed by Nova Southeastern University's Institutional Review Board.

The NSU IRB is in compliance with the requirements for the protection of human subjects prescribed by Part 46 of Title 45 of the Code of Federal Regulations (45 CFR 46) revised June 18, 1991. Cc:

Cc: **Dr. Marcelo Castro**  
**Dr. Jared Bucker**  
**Randy Denis**

## Vita

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Personal        Jacqueline Anita Benes Black  
765 Liberty Church Road, Kingsport, TN 37663  
Married

### Education:

PhD: Criminal Justice and Criminology/Juvenile Justice Track  
Nova Southeastern University, Ft Lauderdale, Florida, 2016  
Masters of Arts- Criminal Justice and Criminology, East Tennessee State  
University, Johnson City, Tennessee, 2003  
Bachelor of Arts – Humanities, Concentration in English, The University of  
Alabama, Tuscaloosa, Alabama, 2002

### Professional Experience:

King University, Assistant Professor in Criminal Justice, Knoxville,  
Tennessee, 2014 to current  
Counseling and Consultation Services, Inc./SteppenStone Youth Treatment Center,  
Administrator, Limestone, Tennessee 2004-2012  
Everest University, Division of CCI, Senior Instructor -Online Professor,  
California, 2011-2013  
Troy University, Online Adjunct Professor Criminal Justice – Troy, Alabama  
eCampus, 2005-2012  
Northeast State Community College, Adjunct Professor in Criminal Justice,  
Blountville, Tennessee, 2006 – 2011  
East Tennessee State University: Center of Appalachian Studies and Sciences  
Carroll Reece Museum Special Events Coordinator, Co-Director,

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Tennessee Governor's School, Johnson City, Tennessee  
Lincoln Memorial University, Adjunct Professor in Criminal Justice, Tennessee,  
2007

East Tennessee State University, Adjunct Professor. Johnson City, Tennessee  
2003-2006

Moral Kombat Facilitator for Court Ordered Adolescents, 2003-2004

Oxford City Schools, Substitute Teacher, Oxford, Alabama, 1998-2002

### Papers and Presentations:

Understanding the Effectiveness of Incarceration on Juvenile Offending through a  
Systematic Review and Meta-Analysis. Do the "Get Tough"  
Policies Work? (Doctoral Dissertation, 2016)

The Impact of Waivers on Juvenile Delinquent and Violent Behaviors, submitted  
for publication, 2016

The Veteran Boy Scout. A memoir of Dr. Charles P. Wofford. Archives of  
Appalachia, East Tennessee State University. 2005

Assessment of Sex Offender Policies Using Police Data: A Therapeutic  
Jurisprudence Analysis presented at the Western Society of Criminology  
with Leonore Simon, PhD., 2004

A Comparison of Female and Males Inmates Using the Survey of Inmates in State  
and Federal Correctional Facilities, Master's Thesis, East Tennessee State  
University <https://www.icpsr.umich.edu/icpsrweb/NACJD/studies/2598>,  
2003

### Current Research:

The Effects of Mental Illness/Diagnosis on Correctional Outcomes for Juvenile  
Offenders

The Treatment of Adolescent Sexual Offenders

Memberships:

Council for Juvenile Correctional Administrators, 2015

Southern Criminal Justice Society, 2014

Appalachian College Association: Teaching and Learning Institute

Western Society of Criminology, 2009-2013

American Society of Criminology, 2004

Awards:

Most Distinguished Graduate Student Award, 2003

Criminal Justice Graduate Honor Society, 2002-2003

National Honor Society; East Tennessee State University, 2003

Graduate Student Spotlight, East Tennessee State University, 2002

Dean's List, University of Alabama in Huntsville, 1997

National Honor Society Award, University of Alabama in Huntsville, 1997

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