COMMUNITY-BASED REHABILITATION EFFECTS ON JUVENILE CRIME RATES AT THE LOCAL LEVEL

by

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A thesis submitted to the faculty of
The University of North Carolina at Charlotte
in partial fulfillment of the requirements
for the degree of Master of Science in
Criminal Justice

Charlotte

2020

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ABSTRACT

MOLLY BYRNE. Community-based rehabilitation effects on juvenile crime rates at the local level. (Under the direction of DR. MAISHA COOPER)

Studies often focus on individual effects and outcomes to analyze whether rehabilitation programs are effective at reducing recidivism. This is an important area of study; however, research has not focused on analyzing how rehabilitation programs can impact entire communities through an overall reduction in juvenile crime. This study aims to address how the use of, access to, and funding of community-based rehabilitation programs can impact juvenile crime rates by analyzing data collected for each county in North Carolina over a five-year span through the use of a fixed effects model. These findings were not statistically significant; however, they still provide insight into how community-based rehabilitation programs are more effective than incarceration and residential programs. They also offer insight into how the disproportionate allocation of funding for community programs throughout the state can impact juvenile crime rates. This study provides a basis for future research to continue to develop these findings both in North Carolina and in other states throughout the United States.

ACKNOWLEDGEMENTS

This thesis would not have been possible without the help and support of my committee and family. I would like to thank Dr. Cooper for dedicating so much of your time and energy to helping me throughout this process and for continuously encouraging me every step of the way. Thank you to Dr. Johnson and Dr. DeWitt for serving as members of my committee and offering your expertise, advice and assistance to this project. Finally, I would like to thank my husband, Dylan, and my parents for providing endless encouragement and support over the last year. I am grateful for each of you and the role that you played in helping me reach this point.

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CHAPTER 1: INTRODUCTION

Rehabilitation for juvenile offenders has been a source of empirical studies for decades, often for the purpose of testing whether rehabilitation programs have the ability to reduce juvenile recidivism rates (Baglivio, Jackowski, Greenwald, & Howell, 2014; Kethineni & Braithwaite, 2010; Lipsey, 1999; Moore & Padavic, 2011). The argument of whether rehabilitation or incarceration is the more appropriate form of punishment for juvenile offenders has been debated by theorists and legislators for decades (Anthonsen, 2010; Darbouze, n.d.; Henggeler & Shoenwald, 2011; Lambie & Randell, 2013; Perelman & Clements, 2009). However, with a majority of the focus being placed on individual successes, little attention has been granted to the positive effect that juvenile rehabilitation programs can have on communities in which juvenile crime takes place.

North Carolina is home to several variations of community-based rehabilitation and treatment programs, in addition to residential rehabilitation programs and juvenile detention centers. By examining the way in which communities are impacted by the use of incarceration and/or rehabilitation for juvenile offenders, one will be able to conclude if rehabilitation – in particular community-based rehabilitation – demonstrates a more positive impact on youth. This study will analyze five years of county-level data on sentencing types and crime rates in counties throughout North Carolina. The central research question that this thesis aims to explore is whether areas that are more prone to utilizing community-based rehabilitation programs over the continued use of incarceration for youth offenders will experience a decrease in juvenile offense rates over time. Prior research demonstrates that community-based, therapeutic, rehabilitative programs offer better outcomes for youth offenders than incarceration and even residential rehabilitation programs (Henggeler & Shoenwald, 2011), which helps lead to the belief that a

more dedicated use of these types of programs will result in less juvenile crime. Another area that this thesis aims to explore is how variations in the allocation of funding for community programs affects juvenile crime. This thesis aims to test how the use of, access to, and funding for community-based rehabilitation programs affects the rate of juvenile offenses in North Carolina. This will examine the argument that the implementation and utilization of community rehabilitation programs can have a positive and lasting impact on communities.

The approach of this study is significant because it draws attention to the ways in which promoting the use and implementation of rehabilitation and community programs can positively impact the scope of juvenile justice in the state of North Carolina. Findings from this study could impact policy decisions regarding juvenile sentencing and could promote more appropriate allocation of funds and resources to support community rehabilitation programs as opposed to detention centers and prisons. Better support of community programs can also serve as a preventive measure by working with at-risk youth before they have even committed a crime. This study is also significant because it attempts to fill gaps in the literature on juvenile rehabilitation, where focus tends to be placed on how these programs affect individuals (e.g. – studying recidivism rates) as opposed to how a dedicated rehabilitative approach at the local level can impact the community as a whole.

CHAPTER 2: LITERATURE REVIEW

2.1. Background on Juvenile Justice

The juvenile justice system was first created in 1899 in Chicago, Illinois to provide a system for treating delinquent youth outside of the adult criminal justice system (Piper & Warner Jr., 1982). Prior to this time, juveniles who committed criminal offenses were handled the same as other adult criminal offenders, without any opportunities for treatment or rehabilitation (Anthonsen, 2010). This transition included the start of the juvenile court, which allowed for juveniles to be tried and treated separately from adult offenders. Since the initial formation of the juvenile justice system, there was a specific focus on rehabilitation and reform that was not as commonly found in the adult criminal justice system (Moon, Sundt, Cullen, & Wright, 2000). A focus on rehabilitation for juveniles have been discussed for decades as a necessary tool to address the needs and behaviors of juvenile offenders, and to limit their future contact with the system (Lambie & Randell, 2013).

In North Carolina, juvenile offenders can face a variety of possible sentences, ranging from community-based intervention programs, residential rehabilitation programs, incarceration in juvenile detention centers, or transfers to adult courts (North Carolina Department of Public Safety, 2019). With the vast variety of correction and program types across the country and within each state, it is expected that some programs will better serve youth than others. Programs can operate under a variety of different goals, leadership styles, and support, which can lead to some being more effective than others (Latessa, 2004).

Rehabilitation has received a great deal of attention in literature as efforts have increased over the past several decades to analyze the effectiveness of rehabilitation programs on juvenile recidivism rates (Henggeler & Schoenwald, 2011). Lipsey (1999) chronicled how the earlier

years of the juvenile justice system were intent on providing more opportunities for rehabilitation as opposed to punishment. These rehabilitative efforts focused on offering services such as academic skills, counseling, supervision, and restitution. Over time, however, some researchers found reason to push for incarceration and punishment. Martinson (1974) argued that various types of rehabilitation had been tried and there was a lack of empirical evidence to demonstrate their success. His piece became the foundation for the doctrine that 'nothing works' in regard to efforts to rehabilitate offenders, until others began to question and contradict these arguments a few years later (Martinson, 1974). Due to Martinson's (1974) arguments and others similar to it, public perceptions shifted to a focus on punishment and a fear around violent juvenile offenders, often referred to as 'super-predators' (Caldwell & Caldwell, 2011; Miller, Potter, & Kappeler, 2006). The idea of juveniles being labeled as 'super-predators' painted an image of children as ruthless and remorseless criminals who were a threat to communities, which was widely used across various media outlets (Miller et al., 2006). This label, which disproportionately impacted youth of color, sparked fear in individuals and led the general public to believe that juvenile crime was increasing rapidly and that harsh sentences were required in order to properly handle it (Caldwell & Caldwell, 2011). This led to an increase in 'get tough' crime policies and a push for harsher punishments and incarceration for juveniles (Perelman & Clements, 2009).

Lambie and Randell (2013) produced a study to demonstrate the problems with this mentality and the ineffectiveness of incarcerating juvenile offenders. The authors outlined negative effects of incarceration on juvenile offenders including victimization that youth can experience within the criminal justice system, mental health struggles, a strain on relationships, physical health, education, and struggles returning to their communities. These findings argued that in order to see success in juvenile offender outcomes, they need to be a part of community-

based intervention practices that will work with the youth offender to achieve better outcomes (Lambie & Randell, 2013).

Studies have also analyzed the process by which juvenile sentences are determined and the effectiveness of those decision-making processes (Abrams, Terry, & Franke, 2011; Baglivio et al., 2014). There are many prominent risk factors that are noted when determining whether an individual seems capable of being rehabilitated or poses a higher likelihood of recidivating. Some of these risk factors include the individual's offense history, age when they first came into contact with the system, demographics, and social characteristics (Abrams et al., 2011). Baglivio and colleagues (2014) utilized a set of risk factors — such as mental health struggles, substance use, behavioral problems, a lack of self-control, victimization, and school performance — to test if they could be effectively used to predict the prevalence of reoffending among a group of serious, violent, and chronic offenders. They found that different risk and protective factors presented themselves within different subgroups of the sample, but ultimately found that addressing these risk and protective factors through preventive measures in community-based programming was more effective than accounting for risk factors through punishment (Baglivio et al., 2014). Abrams and colleagues (2011) also concluded that many of these risk factors can be accounted for through longer commitments to community-based reentry programs.

2.2 Current Rehabilitation Methods

In the past few decades, this image of rehabilitation has evolved into evidence-based practices, effective treatment, counseling, and reentry services (Henggeler & Schoenwald, 2011). Recent reports have assessed different juvenile programs, policies, and government initiatives to offer an assessment of what does and does not work in reducing juvenile crime. Henggeler and Schoenwald (2011) explained that an effective program should be rehabilitative in nature, address specific risk factors and behavioral interventions necessary for adolescent offenders, and

offer support to juveniles and their families. Henggeler and Schoenwald's (2011) report argued that methods such as juvenile transfer to adult courts, surveillance, and shock incarceration are ineffective at reducing juvenile offenders' likelihood of recidivating. On the other hand, therapeutic measures, specifically those that involve work with the family, are championed as being some of the most effective program models (Henggeler & Schoenwald, 2011). These family-focused therapeutic measures include methods such as functional family therapy and multisystemic therapy (Henggeler & Schoenwald, 2011; McKee & Rapp, 2014; Welsh & Greenwood, 2015). Functional family therapy focuses on behavioral problems arising from issues with family dynamics, and places emphasis on addressing those familial problems through intervention techniques. Multisystemic therapy focuses on more than just family dynamics by acknowledging that antisocial behaviors can develop as a result of several different systems such as schools, peers, families, and communities. The focus of both of these avenues for rehabilitation go beyond just rehabilitating the individual and extends their reach to focus on the dynamic of various relationships and the way those relationships will affect individuals upon reentry into their homes and communities (Henggeler & Schoenwald, 2011). Darbouze (n.d.) also argued in support of similar therapeutic measures because of their ability to meet the needs of juvenile offenders. Darbouze's (n.d.) analysis discussed how rehabilitation can serve as a coping mechanism for juveniles to be guided through processing the emotions that they are experiencing, which can encourage them to refrain from future delinquency.

There has also been a focus on implementing evidence-based programs in more juvenile justice systems in recent years (Welsh & Greenwood, 2015). In criminology, evidence-based practices focus on interventions that can be implemented under a set of specific guidelines for treatment and rehabilitation and try to account for variability in individual human experiences and responses to these treatment measures (McKee & Rapp, 2014). Welsh and Greenwood

(2015) examined several state governments within the United States to determine the success of states' attempts to implement evidence-based programs for juveniles. The goal of the study was to identify what has worked for particular states that have demonstrated great success, as a way of helping policymakers and legislators further these goals and objectives for rehabilitation across the country. It was discovered that a key factor in implementing effective, evidence-based rehabilitative practices is dedicated state involvement in the implementation, testing, and funding of these program types. In addition to the assistance of a dedicated state government, other factors such as effective leadership, an emphasis on utilizing research and empirical testing to improve upon current programs, funding, and particular assistance given to counties to help them start and effectively run these types of programs (Welsh & Greenwood, 2015). Present rehabilitation models adapt a variety of formats but are grounded in evidence-based practices and focus on therapeutic efforts, trauma-informed care, and preparing youth to return to their communities (Henggeler & Schoenwald, 2011; Welsh & Greenwood, 2015).

While the development of evidence-based programs offers unprecedented opportunities for success in the juvenile justice system, there are several barriers that prevent many states from fully embracing this model. Some of these barriers include having a clear understanding of direction for these programs, leadership, and funding, to name a few (McKee & Rapp, 2014). Considering potential barriers, Lipsey and Howell (2012) have proposed that it is possible for pre-existing programs to adapt similar practices to offer effective treatment and services and promote better outcomes for juvenile offenders involved. This idea is further supported by Welsh and Greenwood (2015) who suggested that the key to seeing evidence-based rehabilitation programs effectively utilized is by focusing on improving pre-existing programs, rather than erasing and replacing programs. A focus on smaller more manageable changes needed to improve programs, rather than completely starting over, leads states and counties to achieve

more and make real change happen (Welsh & Greenwood, 2015). McKee and Rapp (2014) also argued that evidence-based practices should be implemented in community settings, as opposed to residential or institutional programs, for the methods to have the most effective outcome.

There has been a growing push since the start of the twenty-first century to compare the effects of residential treatment versus community-based treatment, with studies providing a wide range of differing results and conclusions over what works (Darbouze, n.d.; Henggeler & Shoenwald, 2011). Henggeler and Schoenwald (2011) report that residential treatment methods for juveniles are ineffective at reducing recidivism and rehabilitating youth and suggest that community-based practices have proven to be more successful on both fronts. Additional studies have focused on the effects of reentry programs and their success in reintegrating youth into their communities and, therefore, reducing recidivism and rehabilitating the individuals involved (Abrams et al., 2011). Abrams and colleagues (2011) suggested that education and employment are both highly correlated with a lower likelihood of recidivating, which are emphasized and achieved more through the use of community-based reentry programs.

Community programs are not always perceived by the public as being the most effective options for treating juvenile offenders, however empirical evidence demonstrates that these programs are often among the most effective avenues for juvenile rehabilitation (Moon et al., 2000; Phillippi, Cocozza, & DePrato, 2013). In a study published in 2013, it was reported that prior to their successful interventions in gaining support from community stakeholders, only 10% of juvenile offenders were granted the opportunity of being placed in a community-based rehabilitative program (Phillippi et al., 2013). This low utilization of community-based programs was largely due to a lack of policy support and negative public perceptions regarding these types of programs. This particular study chronicled how the state of Louisiana implemented a stronger community model for juvenile rehabilitation through the use of state and local partnerships. After

implementing a stronger community model, the state saw a significant decrease in juvenile arrests (Phillippi et al., 2013). A large reason for the success of these types of rehabilitative programs is that they focus more on working with youth in their "natural environment" (McKee & Rapp, 2014, p. 315) and incorporate the individual, the family, and the community into the work of rehabilitation.

2.3. Theoretical Framework

Labeling theory and reintegrative shaming are often used as a framework for explanations of juvenile rehabilitation. Labels can be seen as both a response to deviant behavior, or as a precursor to delinquency when labels are wrongfully applied to an adolescent. Theorists have argued that the actual criminal behavior occurring should not be focused on as heavily, and rather that focus should be shifted to why labels are applied and how those labels affect an individual throughout their life (Akers, Sellers, & Jennings, 2017). Labeling theory is often used as a framework for supporting juvenile offender rehabilitation because rehabilitation can operate as an effective tool to avoid the negative effects that can arise from juveniles having contact with the criminal justice system (Kroska, Lee, & Carr, 2017).

Labeling generally takes place in two ways: formal labels from the criminal justice system, and informal labels that stem from family members, friends, institutions, or authority figures (Kavish, Mullins, & Soto, 2016). Kavish and colleagues (2016) conducted a study to analyze the effects of formal labels (e.g. - arrest) and different informal labels (e.g. - school stigmatization and parental labeling) simultaneously on juvenile offenders. The results found that formal labeling was significant in predicting future delinquency, and the more serious a formal label was the more of an effect it had on future delinquency (Kavish et al., 2016). Similar findings have been noted by other scholars to further the argument that formal labels stemming

from involvement in the criminal justice system often trigger future delinquency, particularly when formal labels are applied in earlier years of adolescence (Bernburg, Krohn, & Rivera, 2006).

Literature on labeling theory also includes three dimensions of self-meaning, including self-evaluation, self-potency, and self-activity. Kroska and colleagues (2017) found that individuals who had a delinquency adjudication were found to have lower levels of self-evaluation, higher levels of self-potency, and higher levels of self-activity. Their empirical findings provided newfound insight into the theoretical implications of labeling theory and improved upon some of the dated findings that exist in the literature (Kroska et al., 2017). The findings of these studies suggest that an adolescent's perception of care experienced in rehabilitative settings can have an effect on their future delinquency and can potentially intervene with the impact of formal labels (Kavish et al., 2016). Additionally, findings demonstrate that rehabilitation can also help juveniles to redirect negative self-evaluation that they may have developed from any formal labels that may have been imposed on them through the juvenile justice process (Kroska et al., 2017).

There is also a distinction between internal and external labels in this theory. Internalized labeling stems from individuals' perceptions of themselves, their behaviors, and their life trajectory being impacted by the labels they encounter (Liberman, Kirk, & Kim, 2014). When youth are made aware of negative labels and perceptions held by their communities and those perceptions are internalized, the individual may be led to avoid engaging in prosocial relationships due to the stigma they are experiencing (Bernburg et al., 2006). External labeling is instead the social results that occur from the external, societal reactions to such labels. External labeling affects the opportunities that individuals may have, as well as the relationship that

individuals will have with the criminal justice system, such as experiencing an increase in surveillance (Liberman et al., 2014).

Labeling theory as a framework is central to many disciplines and has strong ties to studies of psychology as well. Willis (2018) proposed an argument questioning why society places labels on individuals if they do not want individuals to succumb to those labels. Willis' (2018) study focused on the stigma that is associated with several different labels, including specific examples such as 'offender', 'murderer', or 'sex offender'. In addition to the ways in which society utilizes these negative labels, the study also examined how corrections employees and even some rehabilitation centers can perpetuate such labels. An example of this is seen in some rehabilitation centers that incorporate negative labels into their names, however Willis (2018) addressed how this has begun to change in related fields in recent years (e.g. - the National Alliance for the Mentally Ill changed their name to the National Alliance on Mental Illness in 2005). This shift into less stigmatizing labels can be seen in North Carolina, where the most common residential rehabilitation facilities are referred to as Youth Development Centers ("Youth Development Centers", n.d.). Referring to these rehabilitation programs as Youth Development Centers removes negative labels that could come from words such as 'juvenile delinquent' or 'offender' and focuses on the positive aspect of development for the youth involved.

The drive for researchers to provide empirical studies on the claims of labeling theory generally slowed around the 1970s, due to critiques of the theoretical framework. Researchers critiqued this theory as being too simplistic and difficult to prove empirically (Bernburg, 2009). Plummer (2001) outlined how labeling theory experienced critiques from a variety of researchers, largely due to arguments that the theory had a lack of empirical evidence and pushed

for being more sympathetic towards offenders and softer on crime. Since the 1970s, however, empirical studies have gained greater credibility (Bernburg, 2009). The original theoretical concepts and ideas still act as a foundation for developing studies in the field of criminology and specifically studies on rehabilitation today (Akers et al., 2017). Taking the ideas that have been proposed by labeling theory, studies should focus more attention on the testable nature and empirical evidence provided by the framework of reintegrative shaming. Reintegrative shaming is more widely accepted as a theoretical framework for studies of rehabilitation and has generated greater empirical support and a stronger basis for empirical findings to continue to develop (Akers et al., 2017). Braithwaite (2001) conceptualized reintegrative shaming as a technique for holding youth accountable for their deviant actions, while simultaneously offering acceptance back into the community. There are particular methods to shaming that must take place in order to ensure that it is reintegrative, including mutual respect and a focus on how the action of the crime was harmful, rather than on the overall character of the individual who committed the crime (Hay, 2001). It is argued that this act of accountability and forgiveness will prevent the individual from reoffending and succumbing to their deviant labels (Braithwaite, 2001).

In addition to accountability and forgiveness, another aspect of juvenile rehabilitation that builds off of this theoretical framework is an emphasis on advocacy. Smith (2020) discusses how advocacy plays a key role in the reintegration process, and how that effort can counteract the effects of stigma and systemic barriers that are often faced by criminal offenders. When individuals experience loved ones or communities advocating for their redemption, they are more likely to believe in their own self-worth and ability to change, as opposed to giving into the

hopelessness and control that many individuals experience as a result of the prison system and ongoing surveillance (Smith, 2020).

Reintegrative shaming follows a similar theme as labeling theory but focuses more on how the stigma associated with criminal labels affect an adolescent's future trajectory (Akers et al., 2017). Stigma is a form of disintegrative shaming which does not acknowledge any positive characteristics or future promise of an individual, and instead focuses solely on the criminal action and harm that took place (Hay, 2001). This is noted within another concept known as 'status degradation ceremonies' (Maruna, 2011). Degradation ceremonies generally refer to formal interactions with the criminal justice system, such as criminal trials, in which an individual's status publicly shifts from a person to a criminal. The issue with this ceremonious labeling that takes place in the criminal justice system is that the labels assigned often offer a more permanent effect, as the stigma of being a 'criminal' follows an individual post release from prison as individuals struggle to find employment and housing, among facing other barriers (Maruna, 2011). Another issue pertaining to the stigma associated with formal labels can be described as 'digital degradation' (Lageson & Maruna, 2018). In the current digital age of the world, labels are much more easily accessible across the internet and other digital channels. Since it is easier to locate and disseminate such labels, the stigma individuals experience is much more long-lasting and widespread (Lageson & Maruna, 2018). The stigma associated with these types of degradation ceremonies reinforces the purpose of reintegrative shaming, in its attempt to account for the harm that has been inflicted while also alleviating the stigma that individuals experience upon reentry into their communities.

2.4. North Carolina Juvenile Justice System

North Carolina's Juvenile Justice Department has a variety of efforts that serve, rehabilitate, and/or punish juvenile offenders throughout its 100 counties. There are eleven juvenile detention centers that exist in North Carolina; four of these are county-run and seven of them are state-run. Mental health screenings, treatment, and educational services are made available to youth in these facilities depending on their needs present at the time of admission ("Juvenile Detention Centers", n.d.).

North Carolina also has several different forms of residential rehabilitation centers. First, there are four Youth Development Centers currently in operation, and they serve as the most intensive alternative to incarceration for youth sentenced in the juvenile system. Commitments to these programs are for a minimum of six months and offer services pertaining to education and treatment, with a particular focus on preparing youth for reentry ("Youth Development Centers", n.d.). Residential contracted programs are another type of program that offer both residential care and treatment for adolescents involved in the juvenile justice system ("Juvenile Community Programs", n.d.). The last type of program is Juvenile Crisis and Assessment Centers (JCAC) which offer short-term treatment and care to high-risk juveniles, administer complete assessments, and then place them with services that will best address their needs after sentencing. There are currently only three JCACs in North Carolina, with the first one having opened in 2015. This new area of juvenile justice is becoming a widely accepted avenue for rehabilitation throughout the state ("Juvenile Community Programs", n.d.; "Juvenile Crisis and Assessment Centers", n.d.).

North Carolina also provides a variety of community-based programs for non-residential treatment, as well as offering prevention services for at-risk youth. The scope and reach of these programs vary across the different counties in the state, due in large part to the distribution of

funding available to each county. Juvenile Crime Prevention Councils (JCPC) exist in every county in North Carolina and provide a wide range of services and sanctions for youth involved in the juvenile justice system, at-risk youth in the community, and families of juveniles. JCPCs also offer different services such as assessment programs, restorative justice programs, clinical treatment, and mentoring within their communities ("Juvenile Crime Prevention Councils", n.d.). The programs available and services offered within each county vary based on the state allocated funds provided; some counties offer upwards of twenty programs, while other counties only offer one per year. Many counties also offer JCPC-Level 2 Endorsed Programs, which focus services on more serious juvenile offenders, as well as youth who are deemed more susceptible to reoffending ("Juvenile Community Programs", n.d.). Another type of community rehabilitative effort is Alternatives to Commitment which works to avoid placing juveniles in a residential placement or detention center by seeking other treatment options that will best meet the youth's needs. This effort is generally used for more low-level offenses and is argued to promote positive outcomes on juveniles (Development Services Group, Inc., 2014). The various types of programs available to juveniles in North Carolina offer differing results and are used to various degrees. It is worth noting that differences in funding available to each county likely has a strong impact on the rate of juvenile crime taking place in each location and the effectiveness of the programs available.

CHAPTER 3: CURRENT FOCUS

The effects of rehabilitation on juvenile offenders has been a focus of research — both in support and in opposition of — for decades. This research has seen shifts in the approaches that are taken to uncovering the effectiveness of different sentencing options. Additionally, the research has observed changes in the types of programs that are used and argued as being the most effective.

Among all of the changes that research on juvenile rehabilitation has endured, the variables used to measure the effectiveness of these programs have consistently focused on individual factors. The vast majority of studies on this subject analyze individuals' likelihood of recidivating or changes in criminogenic needs analyses. Factors in analysis look at each individual's length of stay, criminal history, age, and other social characteristics to determine how effective the treatment model was for that individual and why. While research on individual successes and effects of rehabilitation are crucial to studies of juvenile rehabilitation, another area to be explored is the effect that a consistent use of rehabilitation programs at the local level can have on entire communities.

North Carolina serves as a good focus for this research because of its variations in sentencing options available across the state, the foundation of rehabilitation programs that are already formed and operational, and the presence of the Juvenile Crime Prevention Councils (JCPC). The existence of JCPCs offers a unique lens for analysis, due to the fact that these programs exist in some capacity in every county in the state, while operating at entirely different levels and capacities due to the differences in funds allocated to each county. This piece of information will offer an additional layer to the analysis to determine how the variation in state

funds being allocated to each county can have an impact on the degree to which communities are able to effectively rehabilitate their youth.

This study will use information gathered from literature on best rehabilitation practices, the negative impact of incarceration on youth offenders, and support of community-based rehabilitation models as a framework for establishing the research question and hypotheses to explore. Based on that foundation, this study can use the various approaches to juvenile justice within the state of North Carolina to provide a holistic approach to testing the hypotheses in a way that will best account for variations in geographic locations, community demographics, and sizes to acquire generalizable findings on how a consistent use of juvenile rehabilitation at the local level can positively impact communities.

CHAPTER 4: METHOD AND ANALYSIS

4.1. Research Question & Hypotheses

This thesis aims to answer the question of whether variations in the use of, access to, and funding of community-based juvenile rehabilitation programs has an impact on juvenile crime rates within different counties? In order to answer this question, there are three hypotheses that will be tested:

Hypothesis 1: The use of community-based rehabilitative programs will decrease crime rates at the county level, whereas the use of incarceration and residential rehabilitation programs will increase crime rates at the county level.

Hypothesis 2: Counties that have increased access to community rehabilitation programs will experience a positive impact on juvenile crime rates.

Hypothesis 3: Counties that have an increased allotment of funds for community rehabilitation programs will demonstrate a decrease in juvenile crime rates.

4.2. Data

This thesis uses data from the North Carolina Department of Public Safety (NCDPS) Juvenile Justice County Databook, the United States Census Bureau's American Community Survey, and the North Carolina Department of Public Safety's Juvenile Justice Annual Reports for the years 2014 to 2018. The North Carolina Juvenile Justice County Databook provides information on the number of juvenile offenses that took place in each county in a given year. In addition to this, it also breaks down the number of total offenses into each offense type, including violent, serious, minor, infraction, and status offenses. In the North Carolina Department of Public Safety's classifications, violent offenses refer to person crimes such as robbery or attempted murder. Serious offenses are classified as property or weapon offenses.

Minor offenses are all misdemeanor charges, infractions are non-criminal law violations, and status offenses are violations that would not be considered crimes if they were committed by adults. The data set also provides county-level information on the number of juveniles that were sentenced to detention centers, transferred to the adult criminal justice system, and placed in each rehabilitation program offered throughout the state, both residential and community-based programs. The American Community Survey provides data to control for age, race, and gender by providing county-level demographics. The North Carolina Department of Public Safety's Juvenile Justice Annual Reports depict data on the inner workings of each rehabilitation program offered throughout the state, including funds that were allocated to each county and the capacity of juveniles served through each program. All of these data sources are publicly available and do not provide any individual identifying factors for the population being studied. This information exists for all 100 counties in North Carolina, which will serve as the population for this analysis.

Initial data cleaning took place to remove features that had been used to make the original documents more viewer-friendly, such as color schemes and secondary headings. Steps also had to be taken to merge all of the different csv files into one working data frame in R. The American Community Survey spreadsheet had to be created separately because the United States Census Bureau makes this information available as separate documents for each county. This project initially had five separate County Databook files for each of the years being studied (2014 - 2018), an additional spreadsheet that was created with all of the necessary information from the American Community Survey, and a spreadsheet containing all of the information on North Carolina's rehabilitation programs from the Annual Reports. Rather than using different spreadsheets for each set of information, it made the process of analyzing the data more concise to merge these spreadsheets together in R.

After merging these data frames together, other steps had to be taken to manage the data in order to prepare it for analysis in R. First, all of the data for the number of juvenile offenses, the number of juveniles incarcerated, the number of juveniles placed in residential rehabilitation programs, the number of juveniles placed in community-based rehabilitation programs, the number of community programs each county had access to, and the funds available for community programs were all calculated as rates and transformed into their natural logarithms to better account for outliers in the data. Rather than analyzing each separate program that is listed within the North Carolina County Databooks, variables were combined to create two new variables for residential rehabilitation programs and community-based programs. The residential rehabilitation programs variable contained three of the originally listed rehabilitation programs, including Youth Development Centers (YDC), Residential Contractual Programs, and the Western Area Multipurpose Juvenile Crisis and Assessment Center (JCAC). The community-based programs variable was made up of the remaining four programs, which included Juvenile Crime Prevention Councils (JCPC), Alternatives to Commitment, JCPC Endorsed Level 2 Programs, and Community-Based Contractual Programs. An additional variable was also created to represent the number of community rehabilitation programs that each county had access to, in order to be used to test the second hypothesis.

The variables that are most relevant to this analysis include the juvenile crime rates per county, as well as the rates of those that were incarcerated, sentenced to residential rehabilitation programs and community-based rehabilitation programs, the community-based programs that each county had access to, and the funding allocated to each county for community programs. The use of these different variables allows for comparisons of the rates of juveniles within each county that were sentenced within each sentencing capacity. Additionally, use of a variable to

demonstrate the amount of money spent on community rehabilitation programming per adjudicated juvenile in each county serves as an important variable for analyzing how the allocation of funds affects crime rates. Race, age, gender, and region are also used as control variables in the analysis.

4.3. Method

A fixed effects model using panel data in R is used to analyze how variations in the use, access and funding of juvenile community-based programs impacts juvenile crime rates at the county level. This model demonstrates how changes to the independent variables within counties impact their juvenile crime rate. This accounts for how changes over time – increasing or decreasing access, use, and funding of these program types – has an impact on crime rates to determine the overall effect that community-based rehabilitation programs have. The use of a fixed effects model also accounts for omitted variable bias and changes within counties over time. Univariate analysis and other techniques in R are also used to produce visuals to demonstrate the variations in crime rates, use of various rehabilitation programs, and allocation of funds across the different counties in North Carolina.

Dependent Variables

The dependent variable for this analysis is the juvenile crime rates in each county. This variable was calculated as the number of juvenile offenses divided by the total population of youth ages ten to seventeen per 1,000 in each county. The number of juvenile offenses per county was recorded as the total number of all reported offenses or complaints, including status offenses, infractions, minor, serious, and violent offenses.

Independent Variables

The first hypothesis for this analysis uses the rates of incarceration, residential rehabilitation program, and community rehabilitation program use in each county. The second hypothesis uses the rate of community rehabilitation program access as the independent variable. This is conceptualized as the rate of the programs that each county has access to in relation to the number of juveniles in each county. Finally, the third hypothesis uses the rate of community program funding as its independent variable to test how variations in the dissemination of funds affects county crime rates. This variable is operationalized as the amount of money that is being allotted per county for community programming per youth.

Table 1: Descriptive Statistics of Key Variables (n = 100 counties)

Variable	Min.	Mean	Max.	Standard Dev.
Incarceration Rates	0.000	1.615	8.590	1.271
Residential Rehabilitation Rates	0.000	1.007	5.134	0.935
Community Rehabilitation Rates	2.681	35.686	469.697	47.177
Community Rehabilitation Access Rates	0.009	1.564	26.667	2.609
Community Funding Rates	0.574	71.335	1251.088	131.055
Juvenile Crime Rates	1.742	29.206	199.411	14.996

Note. Table 1 includes variables before transformed to natural logarithms

Control Variables

Race, age, gender, and region are used as control variables for this study. Race is classified as the percent white, Black, or other race in each county. Age controls for the fact that the population being examined is youth between the ages of ten and seventeen. The classification

of gender analyzes the breakdown of male and female youth that reside in the designated county.

Table 2 depicts the county characteristics in relation to the control variables. It is clear from this information that most of the counties being studied here are majority white and the youth populations are majority male. For a more detailed breakdown of the key variables in each county, see Appendix A.

Table 2: County Characteristics (n = 100 counties)

Variable	Min	Mean	Max	Standard Dev.
Race - % White	28.58	72.29	96.77	0.18
Race - % Black	0.15	20.38	61.08	0.16
Race - % Other	1.14	7.33	47.37	0.06
% Male	42.20	51.71	66.52	0.03
Age - % Younger Age Group (10-14)	20.53	49.74	66.52	0.05

Note. These descriptive statistics are calculated based on the averages from each county for all five years and reflect all youth ages 10-17 in the county.

4.4. Analysis

The first hypothesis argues that the use of community-based rehabilitation programs will decrease crime rates at the county level, whereas the use of incarceration and residential rehabilitation programs will increase crime rates at the county level. In order to test this using a fixed-effect model, the juvenile crime rates at the county level is used as the dependent variable and the rates of incarceration, residential rehabilitation program, and community rehabilitation program use are the independent variables while controlling for all other relevant factors. This

test shows how changes in the levels of various types of rehabilitation programs and incarceration within a county are associated with that county's juvenile crime rates.

The second hypothesis suggests that increased access to community rehabilitation programs within counties will decrease that county's juvenile crime rates. In order to test this hypothesis, the analysis uses a variable that outlines the accessibility to community programs in each county as the independent variable and the juvenile crime rates as the dependent variable in a fixed-effects model while controlling for all relevant factors.

The third hypothesis argues that an increased allotment of funds for community rehabilitation programs within counties will result in a decrease in their juvenile crime rates. This hypothesis test uses the rate of state funding allocation to each county as the independent variable and the juvenile crime rates as the dependent variable.

These tests analyze any changes in the independent variables throughout the panel. This model accounts for changes in the independent variable in the same year as the dependent variable. The timing of measurement used here is designed to account for the effects that result from changes in the independent variables throughout each year of the five years being studied.

CHAPTER 5: RESULTS

5.1. Univariate Analysis

These findings demonstrate that the juvenile crime rates are generally the same across counties regardless of the majority race, age, or gender of the juvenile population. Figure 1, Figure 2, and Figure 3 have been created to demonstrate this, and represent the findings that the race, age, and gender makeup of each county has no significant bearing on the juvenile crime rates. Outliers are present in almost all categories, with outliers existing for both predominantly male and predominantly female counties and for counties with a majority younger youth (ages 10-14) and majority older youth (ages 15-17) population. While the average crime rate is relatively the same across all races, it is apparent that there are several majority white county outliers with much higher juvenile crime rates.

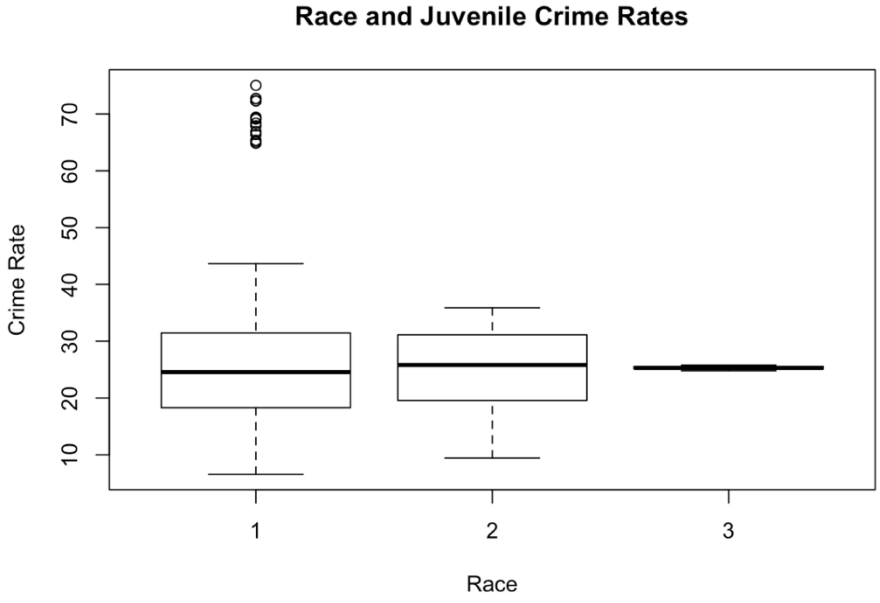

Figure 1: Race and Juvenile Crime Rates

Note. 1 = majority white population; 2 = majority Black population; 3 = majority other race population

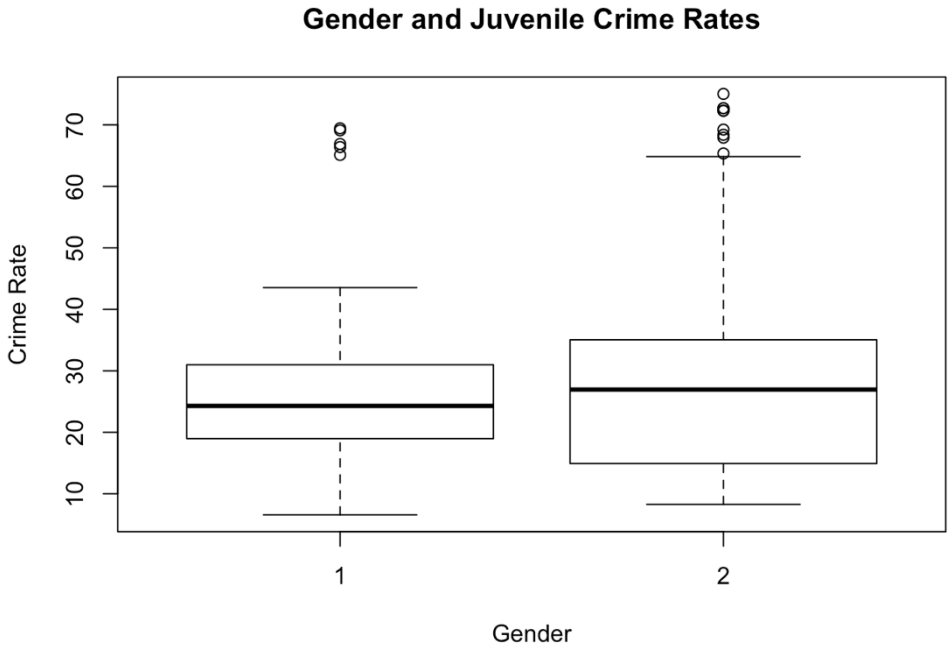

Figure 2: Gender and Juvenile Crime Rates

Note. 1 = majority male population; 2 = majority female population

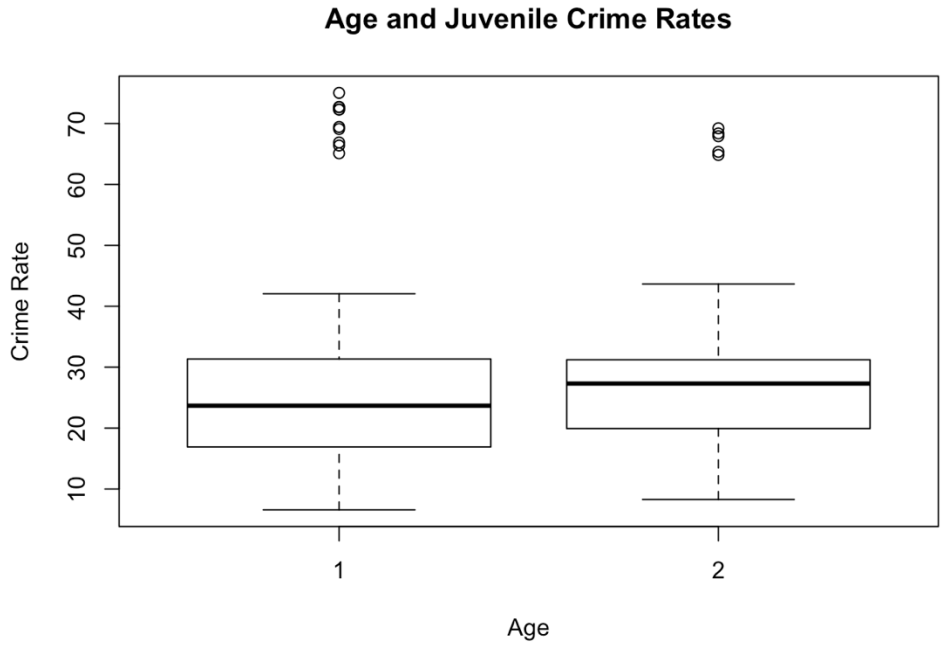

Figure 3: Age and Juvenile Crime Rates

Note. 1 = majority younger youth (ages 10-14); 2 = majority older youth (ages 15-17)

There was inconsistency, however, demonstrated in how community funding is allocated to different counties. Figure 4 clearly demonstrates the way in which community funding was distributed, on average, in relation to the majority race of each county. Figure 4 depicts an obvious disparity between the level of funding granted to counties that are made up of a majority of white individuals and counties that are comprised of a majority of Black individuals. There are several external factors that could be contributing to this disparity in funding allocation, which will be explored further in the next section.

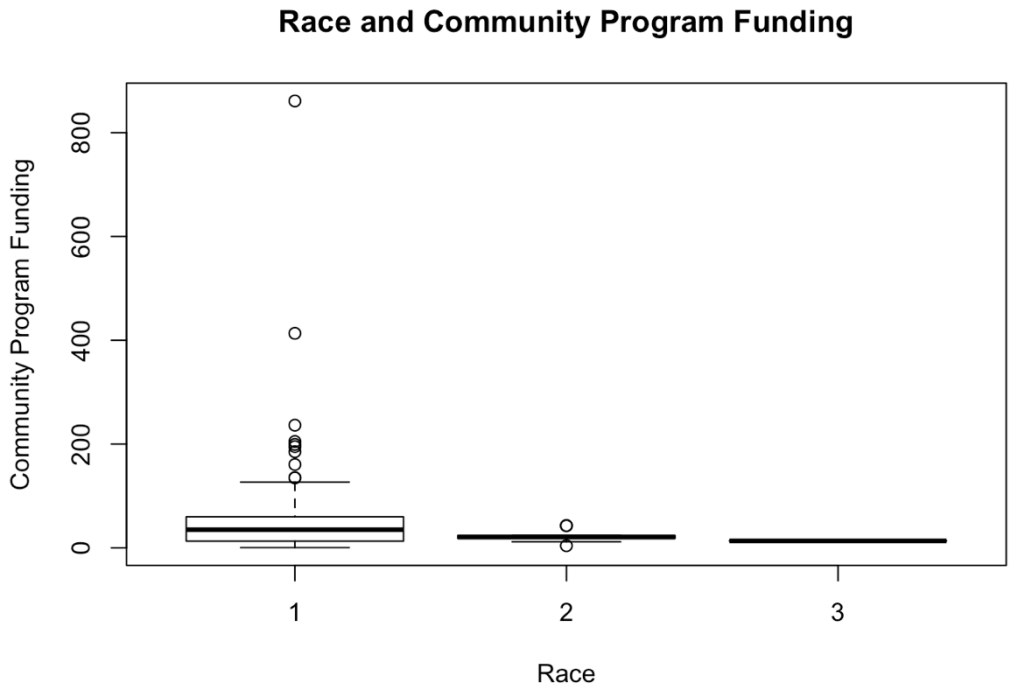

Figure 4: Race and Community Program Funding

Note. 1 = majority white population; 2 = majority Black population; 3 = majority other race population

5.2. Fixed Effects Model

The first fixed effect model was used to test the hypothesis that the use of community-based rehabilitative programs will decrease crime rates at the county level, whereas the use of incarceration and residential rehabilitation programs will increase crime rates at the county level. This model used crime rates as the dependent variable and incarceration rates, residential rehabilitation rates, and community rehabilitation rates as the independent variables. Using the log of these variables to better account for outliers, the coefficient for the incarceration rate is 0.432004, the coefficient for the residential rehabilitation rate is 0.170059, and the coefficient for the community rehabilitation rate is 0.013182. The p-value tests whether each coefficient is statistically significant, which is measured by the p-value being at least less than 0.05. The p-value for the residential rehabilitation rate has a p-value of 0.002337, the community rehabilitation rate has a p-value of 0.720487, and the incarceration rate has a p-value of 3.616e-16. This means that the effect of incarceration and residential rehabilitation programs on juvenile crime rates is statistically significant, but the effect of community rehabilitation is not. As the use of incarceration and residential rehabilitation programs goes up, so does the juvenile crime rate. The null hypothesis must be accepted, and we can therefore conclude that the effect of community rehabilitation programs on juvenile crime rates is not significantly different than zero.

The second hypothesis argues that increased access to community rehabilitation programs within counties will decrease that county's juvenile crime rates. This fixed effect model used the log of crime rates as the dependent variable and the log of the rate of community rehabilitation program access as the independent variable. The coefficient for the access to community rehabilitation programs variable is 0.020979, however the p-value is 0.855197 which means the

variable does not have a statistically significant effect on the juvenile crime rate. Therefore, we can conclude that the null hypothesis must be accepted. This finding could speak to an inverse relationship in which counties that experience a fluctuation in crime rates may also adjust the availability of community programs accordingly in the following year in response to those crime rates.

The third hypothesis argues that an increased allotment of funds for community rehabilitation programs within counties will result in a decrease in juvenile crime rates. This model used the log of crime rates as the dependent variable and the log of community funding rates as the independent variable. The coefficient for the community program funding variable is 0.027767 and the p-value for the community funding variable is 0.813748. This means that there is no indication that this coefficient is significantly different from zero. This finding could also speak to an inverse relationship in which counties that report higher rates of juvenile crime may receive more state funding as a response to those crime rates, or vice versa. These findings are demonstrated in Table 3 below. A deeper explanation of all of these findings, as well as their limitations and implications are explored further in the next section.

Table 3: Primary Findings

Variable	Coefficient	p-value	Standard Error
Incarceration	0.432	3.616e-16***	0.051
Residential Rehabilitation	0.170	0.002**	0.056
Community Rehabilitation	0.013	0.720	0.037
Access to Rehabilitation Programs	0.021	0.855	0.115
Community Program Funding	0.028	0.814	0.118

***Statistically significant at 0.000 p-value
**Statistically significant at 0.001 p-value

CHAPTER 6: DISCUSSION

6.1. Primary Findings

This study aimed to test whether variations in the use, access to, and funding of various types of juvenile community-based rehabilitation programs have an impact on juvenile crime rates by analyzing data at the county-level in North Carolina. The analysis attempted to answer this question using fixed effects models to test the effects of incarceration, residential rehabilitation programs, community rehabilitation programs, access to community rehabilitation programs, and funding for community rehabilitation programs on juvenile crime rates. The project produced interesting results that provide a great deal of room for discussion. While this study did not produce findings that were statistically significant or anticipated, they should still be analyzed and discussed in depth to uncover patterns, relationships, and generate a path for future research.

One clear finding in this study is that, as anticipated, the use of incarceration and residential rehabilitation programs had a positive relationship with juvenile crime rates. This positive relationship is in fact a negative impact for purposes of this study, in that as the use of incarceration and residential rehabilitation programs increases, so does the juvenile crime rate. This relationship between incarceration and juvenile crime has been proven in previous studies and is a testament to the use of rehabilitation (Henggeler & Schoenwald, 2011; Lambie & Randell, 2013; Perelman & Clements, 2009). However, the negative effects of residential rehabilitation programs have only begun to receive attention in more recent years. Some studies have argued the negative effects of residential treatment, which have been verified through the findings of this study (Darbouze, n.d.; Henggeler & Schoenwald, 2011; Welsh & Greenwood, 2015). These results demonstrate that as counties continue to rely on the use of incarceration and

residential rehabilitation programs as punishment for juvenile offenses, the juvenile crime rates in their communities consistently increase at a significant rate. This echoes the sentiment that incarceration is ineffective at reducing crime among juveniles, and also contributes to the notion that residential rehabilitation tools are ineffective. This negative impact from both incarceration and residential rehabilitation programs confirms the need to focus on community rehabilitation programs, as the remainder of the research design intended to do.

There were three independent variables within this methodology that focused on aspects of community rehabilitation. This includes the levels at which community rehabilitation were used, the access to community rehabilitation programs, and the funding available for community rehabilitation programs at the county-level. These three independent variables did not produce statistically significant results, which could have resulted from a number of factors. Some potential factors include descriptive factors such as the way in which the primary data was collected, how the data distinguished the use of community rehabilitation programs from the use of other programs, and overall trends in juvenile crime in North Carolina during the time frame being studied. There were also some methodological factors that may have contributed to these results such as outliers in the data and the period of time chosen to analyze. However, the effect of these factors create space for future research to expand and investigate these hypotheses further. Despite the fact that these findings were not statistically significant, this study did demonstrate that community rehabilitation is a better tool for juvenile offenders than incarceration and residential rehabilitation programs. This is based on the coefficients representing the findings from the first hypothesis; however, the extent of those effects needs continued exploration. Although the significance is questionable, the findings did demonstrate that the rate at which crime rates increase with the use of community-based rehabilitation

programs was close to zero, as opposed to the rate for which crime increased in relation to incarceration and residential rehabilitation programs.

These findings also demonstrated important information regarding the way that the control variables influenced the key variables being analyzed. Major takeaways stem from the influence of region on the types of sentencing being used most often for juveniles, as well as the significant disparities in how funding is distributed in regard to race. Figure 4 depicted the disparity of state funding allocation to counties throughout the state to maintain and operate community-based rehabilitation programs. This assumingly affects the overall rates of juvenile crime, as well as the rates of incarceration, residential rehabilitation use, and community rehabilitation use due to the disparity of funds being distributed.

6.2. Limitations

There were several descriptive and methodological factors that could have contributed to skewness and limitations in this thesis. The first factor that may have caused skewness in the findings is that the community programs in North Carolina serve more than just adjudicated juveniles, unlike other sentencing options in the state. Incarceration and residential rehabilitation programs, for example, are only available to juveniles who have been charged and adjudicated for an offense. The variety of community rehabilitation programs used within each county are often used for at-risk youth in the community in addition to adjudicated juveniles. This variation in who is eligible to use each program could be skewing the results because more youth are recorded as having used certain programs (e.g. - Juvenile Crime Prevention Council programming) even though they may not have actually been contributing to the crime rates. In future studies, it may be helpful to be able to separate out how many individuals were mandated

to use community programs as a sentence for an offense, and how many engaged in the program by request of parents, teachers, or other authority figures.

Another factor that may have contributed to these findings is the fact that juvenile detention facilities and residential rehabilitation programs are often used more regionally in North Carolina, whereas community rehabilitation programs are more often county-run. Findings did demonstrate that certain regions are more likely to use incarceration and/or residential rehabilitation programs over the use of community programs, which could speak to sentencing patterns across certain regions having an impact on the findings. These findings can be seen in Figures 5, 6 and 7 and demonstrate that certain regions, particularly the Western and Piedmont regions, are much more prone to using incarceration and residential rehabilitation programs as opposed to community rehabilitation programs. Additionally, the Eastern region appears much more likely to use community rehabilitation programs than any of the other regions.

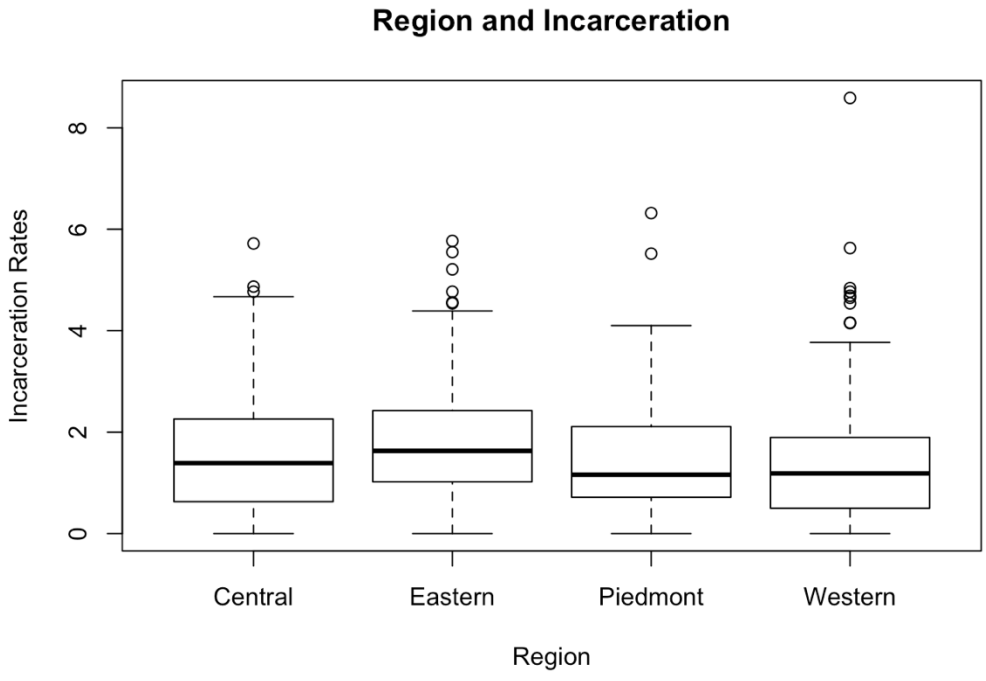

Figure 5: Region and Incarceration

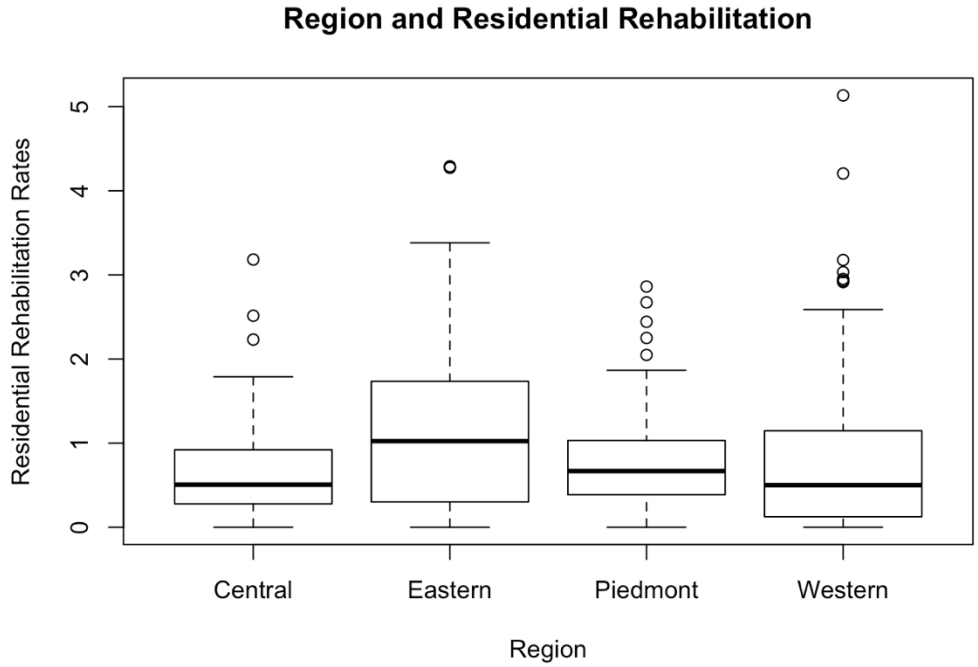

Figure 6: Region and Residential Rehabilitation

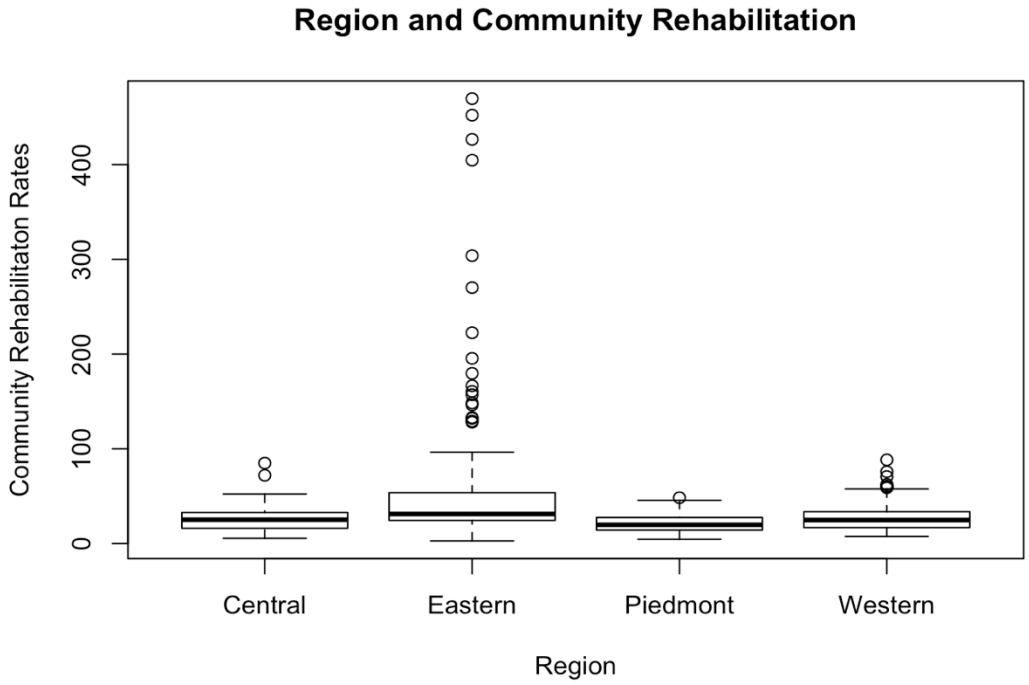

Figure 7: Region and Community Rehabilitation

Another finding that may have been skewed is in regard to county funds for community programs. The third hypothesis argued that counties that are given more funding to manage community programs would demonstrate lower crime rates. It is important to note here that for a majority of counties, they did not experience any major changes to their state funding between 2014 and 2018. Due to the fact that this study used a fixed effects model measuring changes over time, the lack of changes in funds available would understandably lead to insignificant findings for this hypothesis. In instances where counties did receive an increase in funding however, it led to an overall decrease in the county's juvenile crime rate a majority of the time. This leads one to believe that there could be significance to these findings over a larger span of time in which counties may have experienced a more substantial increase or decrease in their funding. It can be demonstrated through univariate analysis, however, that counties with higher rates of funding for community programs tend to have lower juvenile crime rates. This surface-level analysis can be seen in Figure 8.

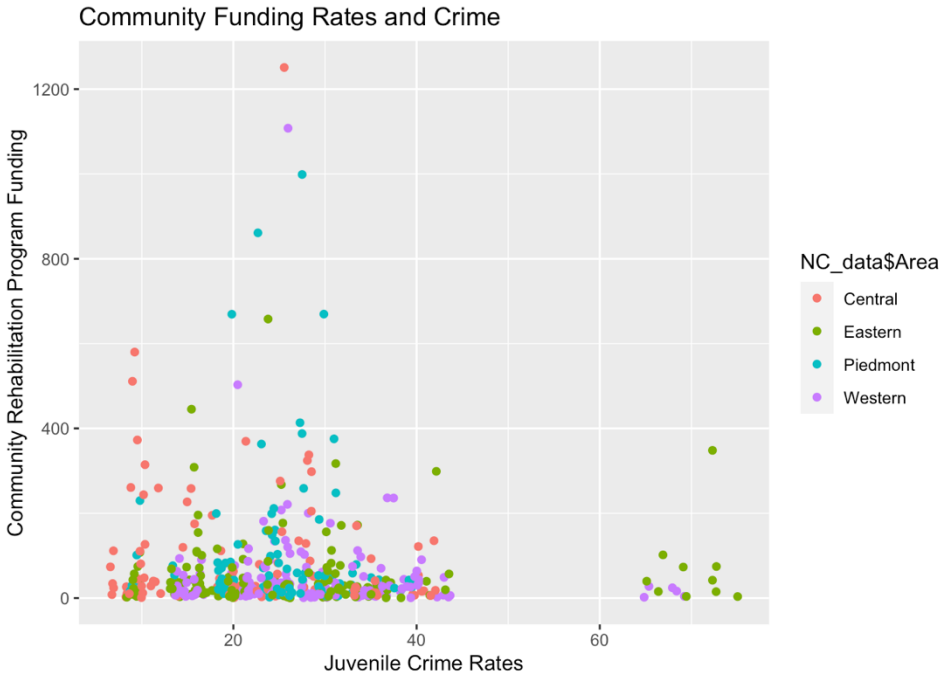

Figure 8: Community Funding Rates and Crime

An additional factor that may have contributed to these unexpected findings is due to outlying data points. There are certain counties in this data set with much higher rates of crime, incarceration, residential rehabilitation use, community rehabilitation use, access to rehabilitation, and funding for community rehabilitation programs. In an initial analysis of the data using the variables as presented in the data set, the findings appeared statistically significant and represented findings that were more aligned with findings proposed by the hypotheses. However, after transforming the variables to their natural logarithms in order to account for outliers, the findings appeared less significant and in some instances the relationships changed direction all together. This transformation speaks to the weight that some of these outlying data points may have on this dataset.

The final, major limitation in this study is that juvenile crime rates were on a steady decline in North Carolina throughout the five years of this study, as can be seen in Figure 9 below. This steady decline across the state may have also contributed to the lack of significance in these findings. This limitation could be mitigated by expanding the study to include data from more than just the last five years. This would provide opportunity to analyze how juvenile crime rates were affected when a focus on community-based programs were first introduced, rather than simply observing the steady effects of these established programs over the last five years.

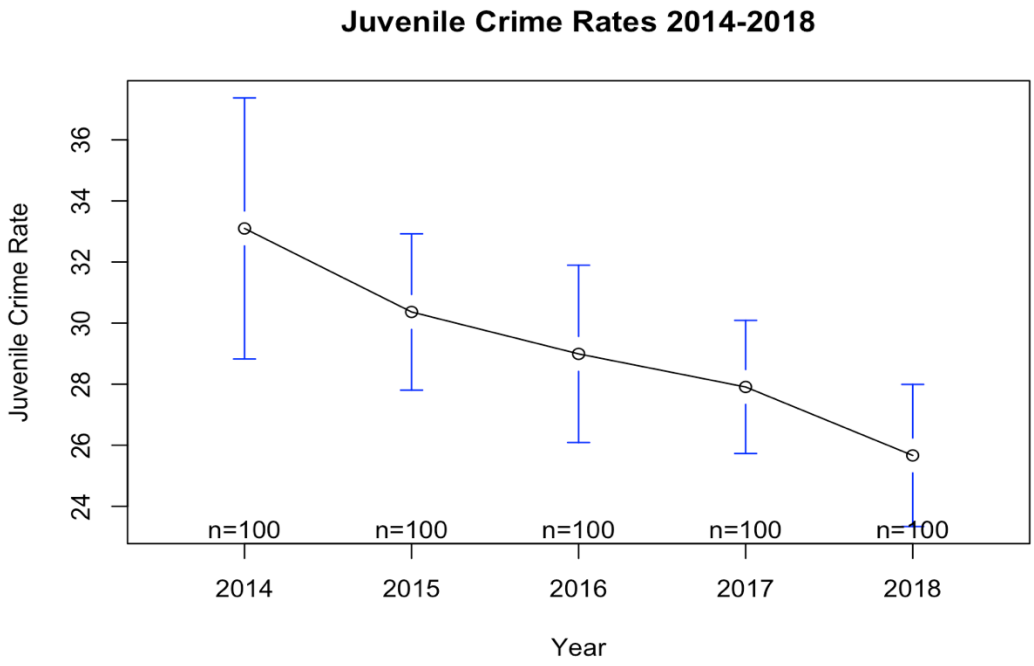

Figure 9: Juvenile Crime Rates 2014-2018

6.3. Future Research

Future research could replicate this study in any number of states to see how a focus on community rehabilitation programs and variations in the allocations of state funding contributes to juvenile crime rates over time. Replication of this study could help to further prove the claims

that these hypotheses aimed to make, while hopefully accounting for the limitations of this study that came from the time frame included here and the factors contributing to skewness and error. Other benefits could also stem from replicating this research in other states in order to draw conclusions as to how geographical location and other demographics could be contributing to the findings. Replication in other states could also be helpful for exploring areas that were not included in this study. For example, there were no significant differences in findings between different offenses types (violent, serious, minor, infraction, and status offenses), thereby leading this study to solely use overall juvenile crime rates as the dependent variable. Future research may find that other states see a greater impact in community-rehabilitation programs on certain offense types at the local level.

Additionally, future research may benefit from collecting original data in order to ensure that the data represented all aspects of the study that were intended. There were additional, minor limitations that existed in this research design based off of the secondary data that was being used, that primary collection could aim to correct. Primarily, the data being used here does not provide any individual characteristics or demographics for the population being studied. The controls that are used from the American Community Survey summarize the county as a whole, which was helpful for the goals of this analysis. However, using more individualized data in the future could better control for how the race, age, and gender makeup of each county's juvenile population and the demographic makeup of specific programs influence sentencing decisions on a more specific basis.

It would also be beneficial for future research to explore, in North Carolina and other states throughout the country, how individual rehabilitation programs impact juvenile crime rates. In this analysis, a variety of different residential rehabilitation programs and community-

based rehabilitation programs were combined into two variables to test the effects of each type of rehabilitation program on juvenile crime rates. It would behoove future studies to investigate how individual program types influence crime at the local level. This would be a particularly interesting area of study in regard to community-based programs. In North Carolina, a large portion of the community-based rehabilitation programs were classified as Juvenile Crime Prevention Councils, due to the state's categorization of their different programs. Within each county, however, JCPCs can look very different. This one category of community-based programs can exist in the form of mentoring services, family intervention, skills training, mediation, and/or community service, as well as a variety of other, localized program models. These programs operate under different leadership styles and with different goals for operation, which could lead to more detailed findings if explored. Incorporating this information into future studies could provide insight on which community-based rehabilitation programs throughout the state are most effective at reducing juvenile crime rates, and the effectiveness of similar program types across counties.

Finally, future studies should also explore the disparity in funding allocation for community-based rehabilitation programs in a deeper, more thorough capacity. The univariate findings from this study imply that counties that have a majority white juvenile population receive greater funding for community-based programs, as opposed to counties that are a majority of Black juveniles or a majority of other races. This finding proposes a significant basis for future research in order to determine if race is a key factor affecting these funding disparities, or if there are other external factors contributing to this finding. It would be beneficial to explore how states determine the distribution of funds for community programs, whether other states

present similar disparities, and if the distribution of funds aligns with any other factors such as prior program success or county size.

6.4. Implications

Despite the fact that this study lacked cohesive statistical significance, there are still major takeaways from this study that support previous findings and support future research in the area of community rehabilitation programs. This study found that higher uses of incarceration and residential rehabilitation programs for juvenile offenders does in fact lead to higher rates of juvenile crime at the county level. It was also found that community rehabilitation programs prove to be better than incarceration and residential rehabilitation programs to some extent, despite those findings not being statistically significant. This can inspire the state to utilize a more concentrated focus on community-based rehabilitation programs for youth.

Additionally, this study shows univariately that counties that receive higher rates of funding for community programs experience less juvenile crime than counties that receive less funding. This can positively influence policy and legislative decision-making to ensure a more equitable distribution of funds in order to see that influence across the whole state. This study allows for future research to expand on these initial findings in a way that can continue to bring attention to the positive impact of focusing on addressing juvenile crime at the local level, and the ways in which disproportionate funding allocation can further contribute to disproportionate crime rates.

CHAPTER 7: CONCLUSION

Furthering empirical evidence in support of community rehabilitation programs for juveniles is significant to reforming the way in which the United States' juvenile justice system treats this country's youth. Although the analysis did not produce findings that were entirely significant, there are still many takeaways from this study that could impact the scope of future research in this field. This study demonstrates that incarceration and residential rehabilitation programs are both responsible for an increase in juvenile crime, thereby confirming that both of these avenues for punishment and treatment are ineffective on the community level. This study also demonstrates that community-based rehabilitation programs are a better suited sentencing alternative across the state. These findings confirm the findings of previous studies as well as encouraging more of a focus on community-based rehabilitation programs instead of residential rehabilitation programs both in practice and research moving forward.

Univariate analysis of this study also provided basic understanding of how the allocation of funds for community programming for juveniles is skewed throughout the state and the impact that can have on juvenile crime. The findings from the fixed effects model did not show a significant relationship between community program funding and crime, however it is clear that counties that receive more funding to establish and maintain these types of programs experience lower rates of juvenile crime.

Moving forward, there are many areas of juvenile justice that could be impacted from future research in this area. First, further exploration of the disproportionate allocation of funding and its impact on juvenile crime could improve the way in which state funds are distributed and influence a more fair and equitable juvenile justice system. Another area of positive impact is exploring more avenues for community-based rehabilitation programs due to the findings that

these programs appear to be more effective. Further exploration into the effectiveness of each program type and its impact on crime rates in different communities could be beneficial in continuing this research. It would also be beneficial to consider other avenues for community-based rehabilitation that are not currently being used in the state of North Carolina. For example, trauma-informed care is another area of juvenile justice study that has been gaining significant attention, as knowledge has increased on the ways in which childhood trauma often link to problems with mental health, substance use, and criminal behaviors (Branson, Baetz, Horwitz, & Hoagwood, 2017). Trauma-informed care, when incorporated into sentencing decisions in the juvenile justice system, works to "realize the impact of trauma, recognize signs and symptoms of trauma, and respond by integrating knowledge into policies and practices to reduce re-traumatization" (McKenna & Holtfreter, 2020, p. 2). These practices focus on the safety of youth, while working to offer support and a voice, empower individuals, build trust, and acknowledge past traumas and how it has affected individuals' behaviors (McKenna & Holtfreter, 2020). Implementation of program types such as this could have incredibly positive implications for the future rate of juvenile crime in the state.

There are obvious limitations to this study, as outlined in previous sections, that may have contributed to skewed results or errors. It is important to consider these limitations when moving forward to study findings in North Carolina further, or when replicating this study in a similar fashion in other states. The groundwork of this study has the potential to positively impact research in this area moving forward to continue to test the significance of a dedicated community-based rehabilitation focus on communities. Future research would also be able to build off of these findings in order to influence more informed legislative and policy decisions

regarding juvenile sentencing, rehabilitation, and community efforts in the state of North Carolina and the rest of the United States.

REFERENCES

Abrams, L. S., Terry, D., & Franke, T. M. (2011). Community-based juvenile reentry services: The effects of service dosage on juvenile and adult recidivism. *Journal of Offender Rehabilitation, 50*. 492-510. doi: 10.1080/10509674.2011.596919

Akers, R. L., Sellers, C. S., & Jennings, W. G. (2017). Criminological theories: Introduction, evaluation, and application. New York, NY: Oxford University Press.

Anthonsen, R. (2010). Furthering the goal of juvenile rehabilitation. *The Journal of Gender, Race & Justice, 13*. 729-752.

Baglivio, M. T., Jackowski, K., Greenwald, M. A., & Howell, J. C. (2014). Serious, violent, and chronic juvenile offenders: A statewide analysis of prevalence and prediction of subsequent recidivism using risk and protective factors. *Criminology & Public Policy, 13*(1). 83-116. doi: 10.1111/1745-9133.12064

Bernburg, J. G., Krohn, M. D., & Rivera, C. J. (2006). Official labeling, criminal embeddedness, and subsequent delinquency: A longitudinal test of labeling theory. *Journal of Research in Crime and Delinquency, 43*(1). 67-88. doi: 10.1177/0022427805280068

Bernburg, J. G. (2009). Labeling theory. In M. D. Krohn, A. J. Lizzote, & G. P. Hall (Eds.), *Handbook on crime and deviance* (pp. 187-208). Springer.

Braithwaite, J. (2001). Restorative justice and responsive regulation. Oxford University Press.

Branson, C. E., Baetz, C. L., Horwitz, S. M., & Hoagwood, K. E. (2017). Trauma-informed juvenile justice systems: A systematic approach of definitions and core components. *Psychological Trauma: Theory, Research, Practice, and Policy, 9*(6). 635-646.

Caldwell, B. & Caldwell, E. C. (2011). “Superpredators” and “animals” - Images and California’s “get tough on crime” initiatives. *The Journal of the Institute of Justice & International Studies.* 61-74.

Darbouze, K. (N.D.). Rehabilitative methods and the affect on juvenile delinquents. *University of Maryland - Inaugural Edition.* 104-117.

Development Services Group, Inc. (2014). Alternatives to detention and confinement: Literature review. Washington, D.C.: Office of Juvenile Justice and Delinquency Prevention. https://www.ojjdp.gov/mpg/litreviews/AlternativesToDetentionandConfinement.pdf

Hay, C. (2001). An exploratory test of Braithwaite’s reintegrative shaming theory. *Journal of Research in Crime and Delinquency, 38*(2). 132-153.

Henggeler, S. W. & Schoenwald, S. K. (2011). Social policy report: Evidence-based interventions for juvenile offenders and juvenile justice policies that support them. *Sharing Child and Youth Development Knowledge, 25*(1). 1-28.

Kavish, D. R., Mullins, C. W., & Soto, D. A. (2016). Interactionist labeling: Formal and informal labeling’s effects on juvenile delinquency. *Crime & Delinquency, 62*(10). 1313-1336. doi: 10.1177/0011128714542504

Kethineni, S. & Braithwaite, J. (2010). The effects of a cognitive-behavioral program for at-risk youth: Changes in attitudes, social skills, family, and community and peer relationships. *Victims and Offenders, 6*(1). 93-116. doi: 10.1080/15564886.2011.534012

Kroska, A., Lee, J. D., & Carr, N. T. (2017). Juvenile delinquency and self-sentiments: Exploring a labeling theory proposition. *Social Science Quarterly, 98*(1). 73-88. doi: 10.1111/ssqu.12307

Lageson, S. E. & Maruna, S. (2018). Digital degradation: Stigma management in the internet age. *Punishment & Society, 20*(1). 113-133. doi: 10.1177/1462474517737050

Lambie, I. & Randell, I. (2013). The impact of incarceration on juvenile offenders. *Clinical Psychology Review, 33*. 448-459.

Latessa, E. J. (2004). The challenge of change: Correctional programs and evidence-based practices. *Criminology & Public Policy, 3*(4). 547-560.

Liberman, A. M., Kirk, D. S., & Kim, K. (2014). Labeling effects of first juvenile arrests: secondary deviance and secondary sanctioning. *Criminology, 52*(3). 345-370. doi: 10.1111/1745-9125.12039

Lipsey, M. W. (1999). Can rehabilitative programs reduce the recidivism of juvenile offenders? An inquiry into the effectiveness of practical programs. *Virginia Journal of Social Policy & the Law, 6*(3). 611-641.

Lipsey, M. W. & Howell, J. C. (2012). A broader view of evidence-based programs reveals more options for state juvenile justice systems. *Criminology & Public Policy, 11*(3). 515-523.doi: 10.1111/j.1745-9133.2012.00827.x

Martinson, R. (1974). What works? Questions and answers about prison reform. *The Public Interest, 35*. 22-54.

Maruna, S. (2011). Reentry as a rite of passage. *Punishment & Society, 13*(1). 3-28. doi: 10.1177/1462474510385641

Mckee, E. C. & Rapp, L. (2014). The current status of evidence-based practice in juvenile justice. *Journal of Evidence-Based Social Work, 11*(4). 308-317. doi: 10.1080/10911359.2014.897099

McKenna, N. C. & Holtfreter, K. (2020). Trauma-informed courts: A review and integration of justice perspectives and gender responsiveness. *Journal of Aggression, Maltreatment & Trauma*, 1-21. doi: 10.1080/10926771.2020.1747128

Miller, K. S., Potter, G. W., & Kappeler, V. E. (2006). The myth of the juvenile superpredator. In B. Sims & P. Preston (Eds) *Handbook of juvenile justice: Theory and practice.* (pp. 173-192). New York, NY: Routledge.

Moon, M. M., Sundt, J. L., Cullen, F. T., & Wright, J. P. (2000). Is child saving dead? Public support for juvenile rehabilitation. *Crime & Delinquency, 46*(1). 38-60.

Moore, L. D. & Padavic, I. (2011). Risk assessment tools and racial/ethnic disparities in the juvenile justice system. *Sociology Compass, 5*(10). 850-858. doi: 10.1111/j.1751-9020.2011.00416.x

North Carolina Department of Public Safety (2019). Juvenile Justice 2018 Annual Report. *Juvenile Justice*.

North Carolina Department of Public Safety (n.d.). Juvenile Community Programs. https://www.ncdps.gov/Juvenile-Justice/Community-Programs

North Carolina Department of Public Safety (n.d.). Juvenile Crime Prevention Councils. https://www.ncdps.gov/juvenile-justice/community-programs/juvenile-crime-prevention-councils

North Carolina Department of Public Safety (n.d.) Juvenile Crisis and Assessment Centers. https://www.ncdps.gov/our-organization/juvenile-justice/community-programs/juvenile-crisis-and-assessment-centers

North Carolina Department of Public Safety (n.d.). Juvenile Detention Centers. https://www.ncdps.gov/juvenile-justice/juvenile-facility-operations/juvenile-detention-centers

North Carolina Department of Public Safety (n.d.). Youth Development Centers. https://www.ncdps.gov/juvenile-justice/juvenile-facility-operations/youth-development-centers

Perelman, A. M. & Clements, C. B. (2009). Beliefs about what works in juvenile rehabilitation: The influence of attitudes on support for "get tough" and evidence-based interventions. *Criminal Justice and Behavior, 36*(2). 184-197. doi: 10.1177/0093854808328122

Phillippi Jr., S. W., Cocozza, J., & DePrato, D. K. (2013). Advancing evidence-based practices for juvenile justice reform through community development. *Journal of Community Practice, 21*. 434-450. doi: 10.1080/10705422.2013.849636

Piper, E. & Warner Jr., J. R. (1982). Group homes for problem youth: Retrospect and prospects. *Child & Youth Services, 3*(3/4). 1-12.

Plummer, K. (2001). Labeling theory. *Historical, Conceptual, and Theoretical Concepts, 1*. 191-194.

Smith, J. M. (2020). The formerly incarcerated, advocacy, activism, and community reintegration. *Contemporary Justice Review*. 1-21.

Welsh, B. C. & Greenwood, P. W. (2015). Making it happen: State progress in implementing evidence-based programs for delinquent youth. *Youth Violence and Juvenile Justice, 13*(3). 243-257. doi: 10.1177/1541204014541708

Willis, G. M. (2018). Why call someone by what we don't want them to be? The ethics of labeling in forensic/correctional psychology. *Psychology, Crime & Law, 24*(7). 727-743. doi: 10.1080/1068316X.2017.1421640

APPENDIX: INDIVIDUAL COUNTY CHARACTERISTICS

County	Avg. Juvenile Crime Rates	Avg. Race - % White	Avg. Race - % Black	Avg. Race - % Other	% Male	Avg. Age Group - % 10-14
Alamance	28.09	70.24	19.14	10.62	47.62	45.57
Alexander	34.46	87.93	5.67	6.40	51.94	51.17
Alleghany	78.36	94.29	2.42	3.29	44.55	48.64
Anson	34.53	47.75	48.74	3.52	49.43	50.18
Ashe	21.33	95.08	0.74	4.18	50.03	54.43
Avery	53.50	91.49	4.47	4.05	43.47	44.61
Beaufort	35.97	71.44	25.51	3.05	51.43	52.18
Bertie	20.04	34.82	61.08	4.10	53.60	50.50
Bladen	10.34	57.14	35.01	7.85	49.36	49.15
Brunswick	39.77	83.71	10.32	5.96	55.57	52.45
Buncombe	23.20	88.80	6.32	4.87	51.86	50.20
Burke	34.75	84.66	6.46	8.88	55.77	45.14
Cabarrus	13.31	71.58	17.69	10.73	49.77	54.08
Caldwell	25.67	89.15	4.88	5.97	52.09	50.05
Camden	10.59	82.45	13.99	3.55	47.80	58.80
Carteret	18.81	89.94	5.63	4.43	53.10	50.17
Caswell	26.04	63.21	32.99	3.80	52.75	52.64
Catawba	30.46	79.04	8.15	12.81	52.51	51.12
Chatham	23.77	80.51	11.57	7.92	51.96	53.18
Cherokee	25.50	93.57	1.32	5.11	56.60	50.27
Chowan	59.09	60.58	34.07	5.35	50.59	52.53
Clay	21.80	96.77	2.09	1.14	50.86	65.45
Cleveland	43.37	74.91	20.84	4.26	50.98	48.27
Columbus	23.29	61.99	30.90	7.10	50.65	50.29
Craven	27.87	70.30	21.69	8.01	51.28	48.68

County	Avg. Juvenile Crime Rates	Avg. Race - % White	Avg. Race - % Black	Avg. Race - % Other	% Male	Avg. Age Group - % 10-14
Cumberland	32.82	50.50	36.89	12.61	51.32	48.28
Currituck	34.63	90.16	5.71	4.13	48.66	48.25
Dare	39.51	92.59	2.18	5.23	50.08	54.45
Davidson	32.59	85.66	9.09	5.25	53.12	51.11
Davie	29.47	89.29	5.49	5.22	51.03	50.77
Duplin	24.94	70.56	24.47	4.98	49.67	51.84
Durham	20.35	51.35	37.04	11.61	49.75	46.31
Edgecombe	36.95	38.49	57.28	4.23	54.85	54.03
Forsyth	31.55	66.19	26.11	7.71	50.67	47.97
Franklin	11.90	67.68	25.28	7.03	52.19	52.39
Gaston	27.44	76.94	15.98	7.08	51.53	50.78
Gates	11.81	63.30	33.65	3.05	45.96	50.93
Graham	24.16	87.81	0.15	12.04	50.55	46.10
Granville	18.40	61.02	30.44	8.53	52.90	49.35
Greene	18.15	58.43	35.71	5.85	57.30	50.56
Guilford	29.02	55.78	33.76	10.45	49.38	46.58
Halifax	54.75	40.09	52.87	7.04	56.46	51.95
Harnett	26.38	67.50	20.84	11.67	51.53	51.84
Haywood	29.56	95.61	1.02	3.37	53.49	52.83
Henderson	25.60	90.76	3.31	5.93	52.18	51.36
Hertford	22.51	34.85	59.52	5.62	51.81	44.16
Hoke	28.46	45.18	33.32	21.50	53.25	56.56
Hyde	13.65	66.35	30.34	3.32	58.77	41.39
Iredell	32.82	81.60	12.30	6.10	51.23	52.32
Jackson	39.60	83.70	2.33	13.97	49.31	33.94
Johnston	12.02	77.52	15.61	6.87	51.52	54.29
Jones	41.46	65.63	31.23	3.14	52.40	48.06

County	Avg. Juvenile Crime Rates	Avg. Race - % White	Avg. Race - % Black	Avg. Race - % Other	% Male	Avg. Age Group - % 10-14
Lee	51.57	73.38	19.80	6.82	47.45	52.01
Lenoir	33.08	55.00	39.38	5.62	51.07	50.37
Lincoln	30.93	89.17	4.99	5.84	52.16	50.77
Macon	41.08	93.80	1.42	4.77	52.67	50.63
Madison	19.99	95.63	1.70	2.67	51.45	41.42
Martin	54.61	54.49	41.99	3.52	42.20	51.12
McDowell	38.65	91.06	3.60	5.34	54.68	49.84
Mecklenburg	31.41	54.49	31.32	14.20	50.11	50.75
Mitchell	27.32	96.42	0.35	3.22	51.55	47.50
Montgomery	23.24	76.32	18.00	5.70	61.24	52.60
Moore	24.75	82.63	12.67	4.70	51.45	51.51
Nash	25.90	52.89	39.17	7.94	51.62	48.65
New Hanover	20.10	81.03	14.02	4.95	49.91	44.92
Northampton	29.92	39.97	56.51	3.51	47.33	48.55
Onslow	37.19	74.49	14.17	11.34	59.09	42.27
Orange	10.45	74.53	11.58	13.88	47.33	38.78
Pamlico	22.26	76.12	18.24	5.64	52.01	49.24
Pasquotank	43.62	58.50	36.52	4.97	50.85	49.97
Pender	30.71	76.87	14.89	8.24	51.81	52.52
Perquimans	31.12	73.58	24.50	1.92	54.52	52.26
Person	41.58	68.18	26.71	5.12	51.82	50.45
Pitt	46.45	57.59	34.77	7.64	50.79	42.93
Polk	18.13	90.41	5.19	4.39	56.04	53.34
Randolph	22.38	84.41	6.26	9.32	50.84	51.66
Richmond	36.72	62.42	31.76	5.82	52.75	53.66
Robeson	34.06	28.58	24.05	47.37	50.72	47.02

County	Avg. Juvenile Crime Rates	Avg. Race - % White	Avg. Race - % Black	Avg. Race - % Other	% Male	Avg. Age Group - % 10-14
Rockingham	27.85	75.68	18.47	5.85	51.83	50.59
Rowan	22.69	77.35	16.04	6.60	52.77	50.87
Rutherford	28.00	86.29	9.70	4.01	51.64	45.99
Sampson	20.80	64.45	25.22	10.33	50.42	51.20
Scotland	40.90	44.38	39.03	16.58	54.39	50.22
Stanly	17.28	83.96	11.18	4.86	51.57	50.57
Stokes	26.58	92.97	4.28	2.75	47.39	49.53
Surry	30.57	91.39	3.77	4.84	48.71	48.30
Swain	25.11	64.75	0.42	34.83	46.41	47.91
Transylvania	23.81	91.15	4.54	4.30	55.53	44.99
Tyrell	42.04	54.65	37.63	7.72	66.52	66.52
Union	20.60	81.53	11.43	7.03	51.58	52.01
Vance	23.09	43.65	50.09	6.27	54.13	54.08
Wake	13.78	65.76	20.31	13.93	50.89	50.73
Warren	31.43	40.06	50.73	9.21	58.18	45.06
Washington	17.05	46.64	47.34	6.01	51.46	47.68
Watauga	21.87	93.92	1.66	4.42	44.58	20.53
Wayne	19.42	62.50	30.53	6.97	53.25	51.64
Wilkes	34.89	91.26	4.13	4.61	52.19	52.26
Wilson	28.15	51.14	39.46	9.40	48.84	48.62
Yadkin	36.53	91.63	3.77	4.60	55.92	49.30
Yancey	26.56	96.15	0.73	3.12	52.95	52.38

Note. Averages calculated based on data collected for years 2014 - 2018