PREDICTING THE LIKELIHOOD OF ARRESTS FOR CRIMINAL BEHAVIOR FROM ADOLESCENCE TO EARLY ADULTHOOD

By

Adam Braxton Downs

A DISSERTATION

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

Human Development and Family Studies – Doctor of Philosophy

2013
ABSTRACT

PREDICTING LIKELIHOOD OF ARRESTS FOR CRIMINAL BEHAVIOR FROM ADOLESCENCE TO EARLY ADULTHOOD

By

Adam Braxton Downs

This study examined data from 311 youth (10-17 years old) sent to a juvenile justice alternative education program located in the South West US. The first round of data collection took place between the years of 2001 and 2007, and focused on personal issues and familial and peer relationship variables. A second round of data was collected in 2010 from the state department of criminal justice. These data consisted of arrest records of the original sample. The strength of predicting arrests for violent and nonviolent criminal behaviors, the severity of crimes, and first arrests after the age of 17 were examined. Parental Verbal Aggression, Peer Alienation and Ethnicity were significant predictors of arrests for violent crimes. For arrests for nonviolent crimes, the level of functioning (General Family Functioning, GFF) in the family was a significant predictor. GFF scores were a significant predictor of arrests for nonviolent crime overall, but also for the seriousness of nonviolent crime and first arrest in early adulthood (after age 17). Gender consistently remained a significant predictor for arrest across hypotheses. Implications of these findings for the juvenile justice system, community agencies and schools, and couple and family therapisits were discussed.
I would like to dedicate this work to my loving family. I have an amazing wife, Karly, and a beautiful little girl Harper. My greatest achievement since entering into recovery is the life I have built with you. I love you with my whole heart.

I would also like to dedicate this to my parents, Myra and Fred Downs. I would never have been able to overcome the many obstacles that stood in my way of success if you had not been there by my side to support me, even in the darkest of times. Mom, dad and Katie, I can only imagine the struggles that you had to endure while watching me try to find my way. I have found my path and through God’s grace I have been blessed with a family that stood beside me and believed in me. I cannot thank you enough for just being who you are.

Finally I dedicate this work to the millions of people who are either seeking or are in long-term recovery from an addiction. Let this work represent just one of the many great accomplishments we can achieve when we recover. Never Alone, Never Again.
ACKNOWLEDGEMENTS

I would like to acknowledge the many people who helped make this study possible. First I would like to acknowledge Oscar Reyes, the lead teacher and counselor at the Juvenile Justice Alternative Education Program where the data was collected. Thank you, Oscar, for allowing us to come into your facility and try something that had not been done before. Second, I would like to thank my committee for all the hours spent looking over this work and giving such helpful feedback that makes my research stronger. Third, I would like to thank Dr. Ryan Seedall and Dr. Ryan Bowles for the invaluable help with the analysis of this research. It was with their help that I could understand and interpret these data. I also have to thank my wife for the late night edits and long trips in which I never did anything besides work on the computer. No way would this work get done without her by my side to support and motivate me. Finally, I would to thank Dr. Richard Wampler for the years of continued support and dedication to not only this study, but to my overall success. He has been my friend and mentor, and I would never have been able to accomplish this without him. I was fortunate enough to take this work, his vision, and turn it into a reality. Thank you Richard, for everything.
# TABLE OF CONTENTS

| LIST OF TABLES | vii |
| LIST OF FIGURES | viii |

## Chapter I: Problem Statement
- Background of Problem ........................................... 1
- Purpose of Study .................................................... 4
- Relevance of Study ................................................. 4

## Chapter II: Literature Review
- United States Crime Rates ........................................... 7
- Juvenile Crime Rates .................................................. 4
  - Violent crime ...................................................... 9
  - Nonviolent crime .................................................. 10
- Development of Juvenile Delinquency ................................. 11
  - Parenting and delinquency ....................................... 13
  - Peers and delinquency ........................................... 16
  - Society and delinquency ......................................... 18
    - Socioeconomic status .......................................... 18
    - Involvement in school and work ................................ 19
    - Geography of juvenile populations .......................... 20
- Genetics and delinquency .......................................... 21
- Complexity of Juvenile Crime ....................................... 22
  - Developmental considerations .................................. 23
- Comorbidity: Juvenile delinquency and additional diagnoses .... 24
  - Substance abuse .................................................. 24
  - Mental health .................................................... 26
- Racial/Ethnic disparities ........................................... 28
- Gender disparities ................................................... 29
- Summary ....................................................................... 30

## Delinquency Trajectory
- Theories of trajectories .............................................. 32

## Cost to Society ....................................................... 36

## Juvenile Justice System ............................................. 37
- Goals of the Federal Office of Juvenile Justice and Delinquency Prevention 39
- Efficacy ....................................................................... 40
- Predicting recidivism ............................................... 41

## Purpose of the Current Study ....................................... 43

## Hypotheses .............................................................. 43
Chapter III: Methods
Sample........................................................................................................45
  Phase I.................................................................................................45
  Phase II.................................................................................................45
Demographic Characteristics.....................................................................46
  Phase I.................................................................................................46
  Phase II.................................................................................................46
Setting.......................................................................................................46
Procedure-Initial Assessment..................................................................47
  Data collection.......................................................................................47
Procedure-Collecting Arrest Records......................................................48
  Data collection.......................................................................................48
  Combining data sets..............................................................................49
Instruments...............................................................................................50
  Youth Self Report..................................................................................50
  General Family Functioning Scale.........................................................50
  Inventory of Parent and Peer Attachment.............................................51
  Children’s Depression Inventory............................................................52
  Conflict Tactic Scale...............................................................................52
  Brief Symptom Inventory.......................................................................53
Missing Data.............................................................................................53
Analysis.....................................................................................................54

Chapter IV: Results.................................................................................62
Results.....................................................................................................62
  Hypothesis 1.1.......................................................................................62
    Odds ratios..........................................................................................63
    Verbal Aggression...............................................................................63
    Peer Alienation...................................................................................63
    Peer Trust..........................................................................................63
  Hypothesis 1.2.......................................................................................64
    Additional findings................................................................................64
  Hypothesis 2.1.......................................................................................65
  Hypothesis 2.2.......................................................................................65
    Odds ratios..........................................................................................65
    Internalizing.........................................................................................66
  General Family Functioning..................................................................66
    Additional findings................................................................................66
  Hypothesis 3.1.......................................................................................67
    Odds ratios..........................................................................................67
    Internalizing.........................................................................................67
    Parent Communication........................................................................68
  Hypothesis 3.2.......................................................................................68
    Odds ratios..........................................................................................68
    General Family Functioning.................................................................69
    Peer Communication............................................................................69
### Additional findings

**Chapter V: Discussion**

- **Summary of Results**
  - Hypothesis 1.1: Violent crime
  - Hypothesis 1.2: Nonviolent crime
  - Hypothesis 2.1: Violent crime (felony 1 or 2)
  - Hypothesis 2.2: Nonviolent crime (felony 1 or 2)
  - Hypothesis 3.1: Violent crime age 17 and above
  - Hypothesis 3.2: Nonviolent crime age 17 and above

- **Major Findings**
  - Predicting arrests for violent crimes
  - Predicting arrests for nonviolent crimes

- **Sample Description and Application**

- **Take Home Message**

- **Implications**
  - Juvenile justice system
  - Early intervention
  - School involvement
  - Community involvement
  - Clinicians

- **Current Programs**

- **Limitations**

- **Future Research**

- **REFERENCES**
<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 3.1</td>
<td>Variables used in analyses (N=290)</td>
<td>57</td>
</tr>
<tr>
<td>Table 3.2</td>
<td>Demographic Description of the Sample (N = 290)</td>
<td>58</td>
</tr>
<tr>
<td>Table 3.3</td>
<td>Age And Arrest Data</td>
<td>59</td>
</tr>
<tr>
<td>Table 4.1</td>
<td>Model Fit for Hypothesis 1.1 – Arrests for Violent Offenses</td>
<td>71</td>
</tr>
<tr>
<td>Table 4.2</td>
<td>Model Fit for Hypothesis 1.2 – Arrests for Nonviolent Offenses</td>
<td>72</td>
</tr>
<tr>
<td>Table 4.3</td>
<td>Model Fit for Hypothesis 2.1 - Arrests for Felony 1 or Felony 2 Violent Offenses</td>
<td>73</td>
</tr>
<tr>
<td>Table 4.4</td>
<td>Model Fit for Hypothesis 2.2 – Arrests for Felony 1 or Felony 2 Nonviolent Offenses</td>
<td>74</td>
</tr>
<tr>
<td>Table 4.5</td>
<td>Model Fit for Hypothesis 3.1 – Arrests for Violent Offenses after Age 17.0</td>
<td>75</td>
</tr>
<tr>
<td>Table 4.6</td>
<td>Model Fit for Hypothesis 3.2 – Arrests for Nonviolent Offenses after Age 17.0</td>
<td>76</td>
</tr>
</tbody>
</table>
LIST OF FIGURES

Figure 3.1  Structure Equation Model I .............................................................59
Figure 3.2  Structural Equation Model II (based on exploratory factor analysis) ..........60
Figure 3.3  Maximum Likelihood Path Analysis .....................................................61
Chapter I: Problem Statement

Background of Problem

Approximately 90,000 young people are held in juvenile justice facilities across the United States (Sickmund, Sladky, Kang, & Puzzanchera, 2008). The average cost to house these young people in state-funded, post-adjudication residential facilities is between $66,000 and $88,000/yr., per youth (American Correctional Association, 2008). This is equivalent to as much as 8.2 billion dollars spent annually by state governments to house and care for these young offenders. These direct costs are dwarfed by the ultimate costs to society when a youthful offender goes on into a life of criminal behavior as an adult (DeLisi & Gatling, 2003).

The primary goals and focus of the juvenile justice system have been grounded in the philosophy of rehabilitation, as opposed to retribution or punishment (Empey, Stafford, & Hay, 1999). This philosophy strives to create a system in which juvenile offenders will exit the system as better-adjusted individuals by means of identification of psychosocial influences on delinquency and the utilization of appropriate and effective treatment options. The reasoning behind the strong emphasis on rehabilitation in the juvenile justice system lies in the assumption that adolescents are more amenable than adults to interventions focused on deterring delinquent behaviors and lifestyles. However, questions regarding the efficacy of this approach can be seen in the literature.

Over time, research shows that there is inconsistency in the timing, rate, and length of an individual’s offending career (Piquero, 2008). Youth who offend at a younger age are more likely to become habitual offenders than their peers who start offending at a later age (Benda, Corwyn, & Toombs, 2001; Cottle, Lee, & Heilbrun, 2001). However, predictions based on the age of first juvenile referral are far from perfect. There is a wealth of literature providing
evidence that a significant percentage of juveniles whose offenses have been deemed sufficiently serious to be sent to correctional programs during adolescence continue to engage in criminal activity as adults (Benda et al.; Ezell & Cohen, 2005; Sampson & Laub, 2003; Warren & Rosenbaum, 1986). These findings suggest that, although the rehabilitation philosophy of the juvenile justice system may be sound, the task of creating more well-adjusted youth is not being carried out in the juvenile justice system.

The purpose of the juvenile justice system is not solely to rehabilitate, although that is a primary goal. Society must also be protected from individuals, both adolescent and adult, who participate in criminal behaviors. Juvenile offending is a serious concern for society. Crime statistics show that juveniles are involved in 9% of all arrests for murder, 14% of aggravated assault arrests, 33% of burglary arrests, 25% of robbery arrests, and 24% of weapons arrests (Snyder, 2002). Juveniles account for 17% of all arrests and 16% of all violent crime arrests in this country. Longitudinal studies of human development suggest that the expression of these antisocial behaviors varies across time and contexts (Broidy et al., 2003; Pajer, 1998). As adolescents mature, develop new social contexts, and create differing social roles within those contexts, their expressions of antisocial behaviors will also change and develop. Based on this theory of human development, it can be argued that a youth who begins by committing minor or “street-level” crimes early on may move into early adulthood and engage in more antisocial behaviors and delinquency.

Juvenile delinquency does not exist in a vacuum. Substance abuse and mental health disorders frequently co-occur with the delinquent behaviors (McClelland & Teplin, 2001). These comorbid disorders create not only a more dangerous situation for society, but also place youth at a higher risk level for future offending. Adolescents participating in high-risk behaviors, such as
substance abuse, are at much greater risk for continuing their delinquent behaviors on into adulthood (Benda et al., 2001).

There are two widely-used offender classification instruments designed specifically to measure the factors that lead to criminal behavior (“criminogenic needs”): the Level of Supervision Inventory (LSI) (Andrews & Bonta, 2010) and the Correctional Service of Canada’s Community Risk/Needs Management Scale (Motiuk, 1993). Both assessment instruments conceptualize criminogenic needs (e.g., substance abuse, antisocial peer groups) as a subset of risk factors that include history of criminal behavior and fixed or static factors (race, gender). There is extensive research that demonstrates that criminal history and a variety of static factors are predictors of persistent delinquent behaviors, and, therefore, should not be ignored when developing both risk assessments and treatment modalities (Gendreau, Little, & Goggin, 1996; Hoge, 1999). However, knowledge of criminal history and static factors alone does not yield the most accurate approach to achieve the overall mission of the juvenile justice system. There is a need also to understand and identify this population’s dynamic factors (family, neighborhood, schools, peer group). The identification of dynamic factors in combination with criminal history and static factors serves two critical purposes. First, it allows a more accurate prediction of recidivism; second, the identification of the dynamic factors that predict recidivism can lead to the development of more appropriate interventions for rehabilitation.

There is an extensive literature examining the causality and initiation of delinquency. Poor family environment, childhood maltreatment, and foster care placement have all been associated with increased risk for the development of delinquency in juveniles (Moffitt, Caspi, Rutter, & Silva, 2001; Ryan & Testa, 2005). However, the extent to which each of these factors influences the progression of delinquency over time and into early adulthood among known
offenders is unclear. Closing this gap in the delinquency literature is essential to the creation of more specific treatments and to address better the goals and philosophy of the juvenile justice system.

**Purpose of Study**

The literature on adolescent and young adult delinquency is vast; however, a critical gap exists. Criminal history and static factors of this population have been shown to aid in the understanding and prediction of delinquency, but adequate research on the dynamic factors of this population is missing. By identifying and understanding dynamic factors, more accurate predictions of recidivism would be possible, and more targeted interventions could be developed. The purpose of the present study is two-fold: first, to identify the dynamic factors present in this population, and, second, to assess the capacity of these factors to predict juvenile and young adult delinquent behavior and recidivism. Following a high-risk population of adolescents into adulthood, this study will examine their trajectories of criminal behaviors and how dynamic factors in adolescence (e.g., parent and peer attachment strategies) may lead to more accurate predictions of young adult delinquency.

There is no one-size-fits-all treatment approach for juvenile delinquency. The ability to predict more accurately how an individual’s pattern of delinquency will evolve over time if left untreated can allow the system to use the body of research and evidence-based treatment interventions to match more effectively the treatment to the individual.

**Relevance of Study**

The proposed study has relevance not only within the area of research on juvenile and adult delinquency but also on several ecological levels. Research, treatment modalities, the
juvenile justice system, and the adult justice system can all benefit if the current study’s goal of more fully identifying predictors of delinquent behavior is achieved.

First, there is a gap in the delinquency research specific to predictors of juvenile and adult delinquency. By adding to the breadth of research on the topic of delinquency trajectories, this study can create opportunities for further research regarding these dynamic predictors and how they influence juvenile behavior. The research on gangs, school bullying, peer groups, parent-child relationships, and family functioning can all benefit from a deeper understanding of predictors of delinquent behavior. The proposed study has importance and relevance beyond that of the juvenile justice system and holds promise for further research.

Second, this study contributes to the body of literature that experts use to formulate new treatment strategies. In this era of demands for evidence-based best practices, it is crucial for the research literature to continue to grow and expand. Only through such research can more appropriate and specific interventions be developed, tested, and implemented in a way that will create the necessary systemic change. This systemic change is necessary to address such a prominent issue in society. Once treatment interventions can be more specific and address what is demonstrated to be linked to future problematic behaviors, best-practice treatments can be implemented.

Third, the juvenile justice system in the United States is in need of evaluation and a more nuanced strategy of rehabilitation. If the juvenile justice system had a clearer understanding of what are the major predictors of delinquency trajectories, the system could change its structure. Given an understanding that there are necessarily punitive consequences for an adolescent who breaks the law, a focused treatment perspective could take precedence, and better matching and placement could be implemented. By clarifying the correct placement for individuals and using
the predictors to specify treatment, juvenile delinquents should have a lower rate of recidivism and a greater chance of becoming successful young adults.

Finally, the relevance of this study goes beyond the juvenile justice system to a much broader system. The inability of the current system to predict juvenile criminal behaviors is causing a burden on the local and state governments from a financial perspective, as well as sending the burden on to the adult justice system. When the juvenile delinquent enters the adult system, s/he becomes a further strain on the community, both monetarily and systemically. Each year over 600,000 individuals are placed in state and federal prisons. The total number of persons within prisons, jails, and on parole or probation equals to 1 in every 32 US adults (Sabol, West, & Cooper, 2009; Justice Policy Institute, 2008; Pew Charitable Trusts, 2008).

Juvenile delinquents who continue their criminal behavior into adulthood will add to the overpopulation within the adult system. These juveniles, once graduated to the adult system, have left the philosophy of rehabilitation behind and are now under the care of a more strictly punitive system. Additionally, a systemic problem exists with the victims of juvenile and adult crimes. The members of society who are affected by juvenile delinquency span from the individual victims themselves to their families, neighborhoods, and communities. Increasing the understanding of delinquency trajectory predictors can decrease the number of innocent victims of crimes.
Chapter II: Literature Review

Crime in the United States affects individuals, couples, and families in a variety of ways, and is a major problem for the population in general. Many adult offenders began their crime history in adolescence. Juvenile crime is a complex topic that includes many potentially influential social factors, psychiatric and substance abuse comorbidity, and differing trajectories in the history of offending. This literature review will examine the topic of juvenile criminal offenders, including the prevalence of juvenile crime, complexities associated with juvenile crime, delinquency trajectories, and the juvenile justice system. Gaps within the way the juvenile justice system addresses juvenile crime will be highlighted, leading to the proposed study that uses both static and dynamic factors to increase the accuracy of the prediction of recidivism and juvenile and adult delinquent behavior. Information on recidivism and the prediction of delinquent behavior can help create more successful rehabilitation strategies within the juvenile justice system and help institutions and agencies to better aid adolescents who have a high probability of future delinquent behavior. The use of both static and dynamic factors will also help in limiting or preventing juvenile and young adult delinquency trajectories by addressing the individual complexities of juvenile crime.

United States Crime Rates

The United States makes up 5% of the world’s population. However, the U. S. currently holds 25% of the world’s prisoners (Pfaff, 2012). This statistic points to the idea that not only are a disproportionate number of people within the population convicted of crimes, but that on a whole, the US imprisons a larger percentage of its population. Additionally, high rates of recidivism (Bureau of Justice Statistics, 2013) point to the struggle that the justice system has in rehabilitating offenders. From the 1920s to the mid-1970s, incarceration rates held steady at 100
per 100,000 people. However moving into the 21st Century, this number has increased by 500% with a prison population growth of over 1.3 million inmates (Pfaff, 2012). Much of this increase in prison population is due to the increase in the number of imprisoned drug offenders. As of December 31st, 2011, there were 197,050 sentenced prisoners under Federal jurisdiction; of those, 94,600 (48%) were serving time for drug offenses. In state jurisdiction, there were 1,362,028 sentenced prisoners, of those, 237,000 (17%) were serving prison time for drug offenses (not including drunk driving) (Carson & Sabol, 2012). Although overall crime rates have declined steadily over the last 10 years, the incidents of violent and property crime are still substantial, as are the rates of incarceration. In 2011, the Federal Bureau of Investigation (FBI) recorded 1,203,564 violent crimes and 9,063,173 property crimes, with the highest incidence per 100,000 people in areas within the South (FBI, 2012). These statistics speak for themselves regarding the large number of incidents of crime in the United States.

**Juvenile Crime Rates**

Many violent and property crimes are committed not by adults, but by juvenile offenders. Additionally, adults who commit crimes have a high probability of long-term crime histories beginning in adolescence. For example, a sample of 9,000 youth in the National Longitudinal Survey of Youth study (NLSY) were followed between the years of 1997 and 2001 regarding their delinquent behavior (NLSY, 2002). Of the 9,000, one quarter of those who committed violent and property crimes between the ages of 12-17 continued their offenses into adulthood (NLSY). Juvenile crime does occur and is of importance due to rates of incidence, the likelihood of delinquent behaviors continuing into adulthood, and complex nature of the topic.

Juvenile offenses range from minor nonviolent to violent crimes that can lead to long prison terms or a death sentence if committed by an adult. Both violent crimes, such as homicide,
weapons use, and gang activity, and nonviolent crimes, such as drug possession and joyriding, are committed by juvenile offenders. These offenders include youth 17 years and younger, both male and female (US Department of Justice, 2012). In 2009, 1.5 million delinquency cases that involved juveniles charged with criminal law violations were handled within the US juvenile justice system. Of the 1.5 million cases, 52% involved youth younger than 16 years of age, 28% involved females, and 64% involved males (gender not specified in 8% of cases). From 1985 to 1997, the number of cases climbed by 63%; from 1997-2009, the number of cases dropped by 20%. Although there has been a drop in instances of juvenile crime violations, they are still numerous and present a problem for society (US Department of Justice, 2012).

**Violent crime.** Violent crime is a problem among the juvenile population. Homicide, use of weapons, and gang activity are parts of this problem. Juveniles have a high rate of cases of murder. In 2002, 1 in every 12 murders involved a juvenile offender with an estimated incidence of 1,300 murders in the US in that year (Snyder & Sickmund, 2006). Additionally, some of the 1,300 murders involved more than one offender; thus, it is estimated that there could be upwards of 1,600 juvenile offenders involved in murder incidents (Snyder & Sickmund).

Other violent crimes, such as threat, assault, or injury with a weapon, are also common among juveniles. A 2003 Youth Risk Behavior Survey examined data from juveniles in 32 states and found that 6% of students affirmed that they had carried a gun, knife, or club on school grounds (Centers for Disease Control and Prevention (CDCP), 2003). Nine percent of students reported being threatened or injured with a weapon on school property. Within this same survey, 33% of high school students reported having been in a physical fight within the past year, and 5% of students reported staying home in the prior 30 days because they felt unsafe at school due
to fear of violence (CDCP). Violence within a school setting is a factor in the lives of many juveniles.

Gang activity is a considerable problem among youth and contributes to the risk of delinquent behavior. The 2004 National Gang Survey estimated that there were 760,000 youth involved in a total of 24,000 different gangs across the country (Snyder & Sickmond, 2006). In 2001 and 2003, another survey among students between the ages of 12-18 was conducted to assess the presence of gangs in public schools (Snyder & Sickmond). One in five students reported that they knew of gang activity within their school. Law enforcement agencies estimate that, of all 10-17 year olds within the US, fully 1% are members of gangs (Snyder & Sickmond). Violent crime and gun and other weapon use are key components of gang activity among youth. One survey in Denver, CO, found that youth involved in gangs over a period of 5 years committed 85% of the total violent offenses within the city (Snyder & Sickmond).

Juvenile criminal offenders within the United States represent a substantial proportion of the violent crimes committed each year. These violent crimes range from murder to injury and weapon use, but all are important in understanding the problem of juvenile crime in this country. In youth today, there is evidence of delinquent crimes against others. These violent crimes are occurring not only in adulthood, but in early adolescence as well. It is clear that these violent crimes are having a negative impact on the youth population as a whole.

Nonviolent crime. Although violent crime is a considerable problem, juvenile offenders are also represented in many nonviolent crimes. These offenses include property damage and drug and alcohol offenses (use, possession, sale, and distribution). Property crime includes theft or damage to property. Specifically, within a school setting, 30% of high school students in a national sample report that they had intentionally damaged or stolen property, such as cars,
clothing, or books, within the last year (CDCP, 2003). Reports of these incidents decreased as the grade level increased, indicating that younger youth were taking a larger part in the property damage and theft.

Another nonviolent category of crime that has significant impact on the juvenile population is that involving drugs and alcohol. More than half of all high school seniors in the United States report using an illicit drug at least once, with a greater percentage using alcohol (Johnston, O'Malley Bachman, & Schulenberg, 2004). Alcohol use among youth was much more prevalent than use of any other substance. More than 3 in 4 high school seniors reported trying alcohol at least once, and 2 in 4 reported using alcohol in the previous month. More specific to alcohol abuse, 3 in 10 seniors reported that they had been drunk within the past month. Fifty-one percent of all high school seniors had tried illicit drugs, 41% of 10th graders, and 23% of 8th graders. Marijuana was the most commonly used illicit substance (not including alcohol). However, 14% of seniors reported use of amphetamines, and 8% reported use of cocaine (Johnston et al.).

Criminal violations involving drugs, including possession, distribution, and manufacturing, are also seen in the juvenile population. In 2009, the Office of Juvenile Justice and Delinquency Prevention (OJJDP) reported an estimated 170,300 arrests of juveniles for possession, distribution, and manufacturing. Other criminal drug offenses were also reported, including 13,500 for driving under the influence, 110,300 for liquor law violations, and 13,800 for public intoxication (Puzzanchera, Adams, & Kang, 2012).

Nonviolent crimes are a more common occurrence among youth populations. These crimes not only affect the individual offender, but family, friends, and the community.

Development of Juvenile Delinquency
A question that arises in examining the occurrence of juvenile crime is, “How do these delinquent behaviors develop?” The development of juvenile delinquency has been explained by a multitude of theoretical concepts. These concepts examine dynamic factors such as parent relationships, peer relationships, societal, and environmental factors, and static factors such as genetic contributions, gender, and race/ethnicity. Each theoretical model attempts to give an explanation as to when and where delinquent behavior begins and how it develops in childhood. Antisocial behaviors in childhood and early adolescence, specifically, are a prelude to the onset of delinquency (DeGarmo & Forgatch, 2005). Antisocial behavior in children is linked to negative outcomes in late adolescence and early adulthood, including alcohol and drug use, depressive symptoms, and employment failure (Moffitt, Caspi, Harrington, & Milne, 2002). It is of importance to understand the development of these antisocial behaviors in childhood and how they create delinquency in later life.

Some of the earliest research on the development of juvenile crime was conducted by Glueck and Glueck (1950). In this classic study conducted in Boston in the 1930’s, two groups of 500 boys (delinquent and non-delinquent) were matched for age, general intelligence, and national origin. All resided in underprivileged neighborhoods. The two groups were matched on the following factors: home and family conditions, school and community adjustment, personality structure and temperament, physical condition, physical structure, and intelligence. The results were remarkable. Glueck and Glueck found significant differences between the delinquent and non-delinquent youth in all areas, despite the matching and control of variables. This study was the first to establish that the development of delinquent behavior could not be linked to a single causal factor. This research showed there are several factors that influence the development of delinquency.
Parenting and delinquency. The topic of parenting and how parents influence delinquent behavior is a common focus of attempts to understand the development of juvenile delinquency. Many parental factors have been proposed, and there are several theories associated with parenting behaviors that are linked to antisocial behaviors and eventual delinquency.

One theory that is used to describe the relationship between parenting choices and delinquent behavior in children is a theory of motivation, the Construct Theory (McCord, 1999). This theory focuses on the relationship between drives and needs. This theory states that what caregivers do affects what children learn. Descriptions are given to children by their parents regarding the world around them (e.g., what is to be done, to be avoided) and are used in the creation of behaviors. Caregivers also teach children how to act by giving specific cues as to values that they themselves place on behaviors. In early childhood, caregivers provide the contingencies by which children learn how to categorize the world around them.

Studies of corporal punishment are an example of how parents construct how children behave. For example, kindergarteners who were spanked at home displayed more anger and aggressive behavior within the classroom than those who did not receive physical punishment (Strassberg, Dodge, Pettit, & Bates, 1994). McCord (1997) found similar results over the longer term. A father’s use of corporal punishment predicted an increased likelihood that his son would be convicted of a serious violent crime, even after statistically controlling for paternal warmth. Additionally, after statistically controlling for maternal warmth, a mother’s use of corporal punishment also predicted an increased likelihood that her son later would be convicted of a serious violent crime. These findings suggest that parents who use corporal punishment set certain contingencies for their children that include the use of violence and aggression as a way to handle discipline. These constructs are then used by the children later in life.
The Social Interaction/Social Learning theory was developed to explain the relationship between parenting and delinquency (Patterson, 1982; Patterson & Dishion, 1985). Patterson and Dishion and their colleagues argue that delinquent behavior is the outcome of a breakdown in family management procedures including discipline, monitoring, and parental reinforcement of behaviors. The NLSY (2002) followed 9,000 youth and found that parental structure was a key component in limiting crime in juveniles. Youth with both biological parents living in the same home reported a lower lifetime prevalence of, not only crime in general, but a variety of specific crimes, including drug use, drug selling, vandalism, theft, and assault (NLSY). With both parents living in the same home, there can be an increase in monitoring and parental involvement in discipline and reinforcement. Repeated failures to support prosocial behaviors, discipline antisocial behaviors, and utilize effective monitoring combine to produce an increase in antisocial behaviors and impairment of a child’s development of social and academic skills (Patterson & Dishion).

Parents also play a key role in a child’s learning social survival skills. Specifically, a parent’s failure to reinforce positive skills sets regarding academics, work, and relationship building can lead to deficits later in life. Additionally, parents have the responsibility to teach skills regarding problem solving. Measures of parents’ skills in solving family problems correlate significantly with measures of academic skill and peer relationships in children (Patterson & Stouthamer-Loeber, 1984), suggesting that poor problem-solving within the family can lead to difficulties with academics and in creating functional peer relationships.

Another line of research that has a focus on parenting within the Social Interaction/Social Learning model is the work of DeGarmo and Forgatch (2005). This approach utilizes both the Social Interaction/Social Learning theory, but further addresses how coercive interactions
between parents and children can be over-learned and lead to a pattern of antisocial behaviors inside and outside the home. Family members can also reinforce antisocial behaviors by exhibiting negative behaviors, arguing, talking back, fighting, etc. These interactions are then generalized to relationships outside of the home, with peers and teachers, leading to academic failure, rejection by peers, and/or association with deviant peers.

An additional theory that has had influence on DeGarmo and Forgatch’s (2005) work is Coercion Theory (Patterson, 1982). This theory was developed through hundreds of observations of parents and children interacting. The basic principle of this theory states that parents and children train each other to behave in ways that increase the probability that a child will develop aggressive behavior (Granic & Patterson, 2006). Parents and children communicate through a series of interactions: parental demands on the child, the child’s refusal to comply and escalation of complaints, and finally the parent’s capitulation. Coercive interactions between a parent and child are the behavioral mechanisms by which aggression develops and stabilizes over time (Granic & Patterson). Further, the behaviors are generalized to other adults and peers (Patterson, Reid, & Dishion, 1992).

Conduct problems or symptoms of conduct disorder in childhood have also been linked to parental and familial influences. Longitudinally, childhood conduct disorder has been seen to lead to more serious criminal offenses later in life (Henggeler & Sheidow, 2003). Parental factors that have a specific link to later offspring delinquency include caregiver characteristics such as drug use, young maternal age, and evidence of caregiver psychopathology. Familial factors linked to conduct problems include a lack in conflict-management skills of the family and lack in adequate monitoring/supervision of children. Consistent with findings from DeGarmo and Forgatch (2005) and Patterson and Dishion (1985), Henggeler and Sheidow (2003) found further
evidence of the strong relationship between parental behaviors in childhood and the eventual development of delinquent behaviors. Evidence also shows that parental behaviors have a direct connection to peer interactions and the relationships that children eventually create. Parental failure to monitor and create strong social skill sets in childhood lead to a child’s increased involvement with delinquent peer groups which in turn directly contributes to delinquent activity (Patterson & Dishion, 1984).

The presence of crime around a juvenile is also a predictor. If peers or family that surround the youth are involved in criminal activity such as drugs or gangs, the likelihood of juvenile crime is much greater. Specifically, youth who were exposed to crime in their homes or peer groups were three times more likely to have engaged in vandalism, theft, serious assault, carrying a handgun, and selling drugs (NLSY, 2002). The exposure to criminal behavior can have a normalizing effect on such behavior and leaves the juvenile unable to identify these behavioral choices as delinquent and unacceptable. The normalization of delinquent behavior can communicate messages in support of these behaviors such as “This is what you do to be cool,” “This is what we do in this family,” “This is what men do,” etc.

**Peers and delinquency.** The types of relationships and interactions that children have with peers have a strong linkage to the development of antisocial, conduct, and delinquent behaviors (DeGarmo and Forgatch, 2005; Dishion, Capaldi, Spracklen, & Li, 1995; Dishion, McCord, & Poulin, 1999; Henggeler and Sheidow, 2003; Patterson, 1993; Patterson & Dishion, 1985; Patterson et al., 1992). Quantitative research, conducted by Patterson (2003), shows that having an association with deviant peers is uniquely related to growth in problem behaviors. Other research supports Patterson’s conclusions.
As part of the Oregon Youth Study, 206 boys and a friend were videotaped in a 25-minute problem-solving discussion (Patterson et al., 1992). Topics of conversation were coded as either “rule-breaking” or “normative,” and the friend’s reactions were coded as either laughter or pause. From these findings, the term “deviancy training” was created in which participants were observed giving positive reactions to rule-breaking discussions. This deviancy training was found to be common in this study of high-risk boys. The degree of rule breaking in the discussion was correlated with increases in self-reported delinquency from age 14 to 16 (Dishion et al., 1995). Peer deviancy training has been shown to predict substance use, delinquency, violence, and adjustment difficulties into adulthood (Dishion et al.).

The Social Learning/Social Interaction theory (Patterson & Dishion, 1985) also speaks directly to the influence of peers on deviant behavior. Children with the inability to relate to normative peer groups or those that are rejected from normative peer groups are likely to shift their commitment to deviant peer groups. Association with deviant peers contributes to high rates of delinquent activities. These deviant peers play an important role in the child’s life by polishing antisocial skills, instigating delinquent activities, and teaching antisocial values (Patterson & Dishion). There is a reciprocal relationship between youth who are prone to antisocial behaviors and selectively affiliate themselves with deviant peers and the processes of deviant peers who model and reinforce antisocial behavior.

Rejection of and by normative peer groups is related to an increased likelihood of participation in deviant peer groups, as has been shown by Patterson and Dishion (1985). Specifically, young aggressive children who are rejected by peers are at a significantly greater risk for later antisocial behaviors that children who are not rejected (Wasserman et al., 2003). There are two explanations as to why peer rejection leads to an increase in antisocial behavior.
First, peer rejection could lead to greater suspiciousness as to other people’s motives. The behavior of others may be interpreted as hostile, and produce greater aggressive responses toward others. Second, peer rejection may cause children to have fewer positive social options, leading them to become part of a more deviant peer group (Wasserman et al.). Additionally, children who are rejected by normative peers have a greater need for belonging and may be willing to engage in more antisocial activities to maintain a connection to a deviant peer group.

Overall, peer relationships have a strong influence on the development of antisocial behaviors in children. Peers influence children and adolescents both in the initial offending in “late starters” and the escalation of serious offenses in “early starters” (Wasserman et al., 2003). The inclusion into deviant peer groups due to rejection by normative peers, a need to belong, and the practice of “deviancy training” all show the power that peers have on behavior.

**Society and delinquency.**

*Socioeconomic status.* The development of delinquent behavior in juveniles has been seen in parenting and in peer groups; however, there is also evidence that the society in which a child lives can also help foster antisocial behaviors (Jaffee, Strait, & Odgers, 2012). Factors of society that can influence deviant behaviors include neighborhood poverty, low levels of neighborhood efficacy (Sampson, Raudenbush, & Earls, 1997), and family poverty (Duncan & Brooks-Gunn, 1997).

Family poverty has been assessed in several studies using data from the NLSY (2002). Hao and Matsueda (2006) examined siblings in early childhood and found that differences in experiences of poverty were associated with differences in antisocial behavior. Additionally, Strohschein (2005) followed families with children from early childhood into early adolescence,
concluding that children had significantly fewer antisocial behavior problems during periods when their families had higher income levels.

Similarly, youth antisocial behavior was found to be higher in children whose families chronically fell below the poverty line, according to data taken from the National Institute of Child Health and Human Development Study of Early Child Care and Youth Development (Dearing, McCartney, & Taylor, 2006). Evidence shows that there is a relationship between family income level and children’s antisocial behaviors. This relationship is shown to be stronger in boys. Low family income has a greater effect on later antisocial behavior if it occurs in early childhood than at later stages in development (Jaffee et al., 2012).

**Involvement in school and work.** An additional factor that influences juvenile crime is whether the youth has a connection to a school setting or a workplace. Youth who attend school on a daily basis or those that have work to go to are less likely to be involved in juvenile crime (NLYS, 2002). Those juveniles not involved in school or work have a significantly greater risk of specific crimes, such as drug use, gang involvement, major theft, serious assault, selling drugs, and carrying a handgun (NLYS). Having the knowledge of whether a youth is involved in school and/or work leads to a stronger understanding of the individual. Juveniles who can hold a job or are successful in school are demonstrating that they are engaged in their lives and that they can hold a certain level of responsibility. Additionally, youth who are involved in school and work display the ability to have well-adjusted relationships with both adults and peers. This information helps in the understanding of youth who do and do not commit juvenile delinquent behavior and can assist in future predictions of those youth who may be more likely to commit crimes.
Geography of juvenile populations. Neighborhood disadvantage is a factor that has a smaller effect on antisocial behavior in children than family poverty (Jaffee et al., 2012). One quasi-experimental study (Kling, Ludwig, & Katz, 2005) followed families living in neighborhoods in poverty as they moved to neighborhoods with higher affluence. After a period of 4-7 years, it was found that girls had significantly lower arrest rates for violent and property crimes. No significant differences were found with boys. Researchers concluded that boys were more likely to capitalize on newfound opportunities to commit crimes in the new neighborhoods, despite affluence, as they were less attached to school and had higher levels of deviant peer groups. An additional, quasi-experimental relocation study conducted a 7-year follow-up on families moving out of poverty. Researchers found no differences in parent or youth reports of antisocial behavior (Fauth, Leventhal, & Brooks-Gunn, 2007). These findings suggest that neighborhoods have an influence on girls, but, again, parenting and peer group involvement seem to have the strongest relationship with the development of antisocial behavior. Because of the evidence that early poverty has a greater impact on later delinquency and males are more likely to offend than females, these quasi-experimental studies are limited in their application.

The physical environment and where the youth congregate can also be influential. Place-based juvenile crime research is the examination of the incidence and prevalence of youth involved in crime within a specific location. There have been a several studies that have shown crime to be concentrated or clustered in “crime hot spots” (Brantingham & Brantingham, 1999; Weisburd, Maher, & Sherman, 1992; Weisburd, Morris, & Groff, 2009). A longitudinal study examined this phenomenon in regards to juvenile crime (Weisburd et al., 2009). Over a period of 14 years, the juvenile arrest incidents in Seattle, WA, were examined. It was found that one third of all crime incidents that included a juvenile were clustered in only 86 individual street
segments (two sides of a street between two intersections) within the city. This research demonstrates that there is a direct relationship between the geography of youth and incidence of juvenile crime.

Understanding that juvenile crime is high in the communities in which these delinquents live is critical in understanding delinquent behavior. It is unlikely that juveniles comprehend the influence that their crimes have on their families, peers, and community. For example, a juvenile who commits a crime in his/her own neighborhood does not understand the rippling effect on the victim of the crime, the increased fear in the neighbors who live in the surrounding area, the heightened anxiety of community business owners, etc. The prevalence of juvenile crime within specific geographic clusters also shows a lack of impulse control as the juveniles are committing delinquent behavior in their own environment. Studies indicate much of juvenile crime occurs with little premeditation when a juvenile “decides” to commit a crime (Dahl, 2004). Again, having this knowledge assists in understanding the juveniles who are committing crimes and reinforces the finding that the combination of brain immaturity and deviant peers in a risky environment leads to poor impulse control.

Having an understanding of the factors that influence the presence of juvenile crime is vital in creating a clear picture of each individual juvenile offender. The more information that is known, specific to family, peers, geography, and school/work environment, the better the ability to address the risk level of the youth. This knowledge can help in creating more specific interventions and in preventing further criminal behavior.

**Genetics and delinquency.** In an effort to understand the development of delinquent behavior, it is also important to examine the possible impact of genetic factors on a child. Behavioral genetics is an area of research that has examined the relationship between an
individual’s genetic makeup and the delinquent behaviors that they establish. Behaviors, such as delinquency, are complex, and it is evident that genetic factors can be only the first stage of any causal linkage to how delinquency develops in youth (Rowe & Osgood, 1984). Unlike earlier genetic-based formulations (i.e., the “bad seed” theory), modern genetic theory argues that differences among individual’s antisocial and delinquent behaviors are the joint product of a genetic component and environmental components. The genetic component of the development of certain behaviors refers to the variations in an individual’s genotypes. Individual genotypes can give an initial direction to the development of certain behaviors (Rowe & Osgood). The same gene variants that influence how parents behave with their children can be passed to their children and influence a child’s behaviors and abilities (Jaffee & Price, 2007).

Antisocial behavior, specifically, has been found to be moderately hereditable (Burt, 2009). Additionally, adults who have shown antisocial behaviors tend to create environments that help to transmit antisocial behavior across generations (Jaffee, Belsky, Harrington, Caspi, & Moffitt, 2006). There is a complex relationship in which genetic risk factors can be transmitted directly from parent to child and/or genetics of the parent can help to create an environment that fosters antisocial behavior.

The combination of parenting, peer groups, society/environmental, and genetic factors can explain much of the variance in how juveniles develop delinquent behavior. Parent and peer interactions seem to be the most direct link; however, genetic risk matched with environmental risk can also have a lasting effect on the development of deviant behaviors.

**Complexity of Juvenile Crime**

In addition to the high rates of juvenile crime, its complex nature makes it a particular challenge. This complexity can be examined through several lenses. The developmental stage of
adolescence, the contextual factors influencing juvenile criminal behavior (e.g., family and peer structures, school and work involvement, and geography or location), and comorbidity of juvenile crime with both substance abuse and mental health problems all combine to create the need for a multifaceted view of juvenile criminal behavior. In order to understand the history of criminal behaviors in juveniles and how to address criminal behavior, it is imperative to have knowledge of multiple aspects of the juvenile offender and what may be involved in the creation of delinquent behavior.

Developmental considerations. One reason for the complexity of juvenile crime is that it involves the behavioral choices of a youth population. Developmentally, teenagers (17 years and younger) and young adults (under 25) think and behave differently than a fully mature adult population. Adolescence is a period where youth are in the middle of understanding the linkages between emotion and behavioral choices and long term goals and consequences (Steinberg, 2005). Physiologically, the prefrontal cortex of the brain which controls executive functioning (including self-control, impulse control, and judgment) continues to develop throughout adolescence into adulthood (Blakemore & Choudhury, 2006). The executive functioning of the brain gives the person the ability to link past experiences with present action (National Center for Learning Disabilities (NCLD), 2013). This functioning helps in the development of goals and the understanding of consequences. The delays in the brain development of an adolescent and the corresponding delay in the process of developing the ability to link behavior and consequence lead to a high rate of risky behavioral choices in this developmental period. In the period from school age to late adolescence, the morbidity and mortality rates in this population increase by 200%. This high rate of death and disability is not due to physical illnesses, but a consequence of the adolescent’s difficulty in controlling behavior and emotion throughout this developmental
stage and is seen in rates of automobile and other accidents, suicide attempts, homicides, etc. (Dahl, 2004).

Although a youth population, in many ways, can look and appear similar to an adult population, it is vital to have the knowledge that cognitively, these juveniles do not have the same abilities as do adults to execute reason, judgment, and self-control. This lack of mature skills limits this population’s ability to make educated and reasoned decisions regarding behavior and likely consequences. Juvenile delinquents, inherently, do not have the same ability as adults to take the safety of themselves and those around them into consideration. There is evidence of problems related to impulsivity and instant gratification with lack of understanding of consequences both individual and systemic (CDCP, 2003; Johnston et al., 2004; Puzzanchera et al., 2012). Juvenile criminal behaviors have a high cost to society.

**Comorbidity: Juvenile delinquency and additional diagnoses.** Comorbidity is the presence of one or more disorders in addition to a primary diagnosis or difficulty. In addition to factors that influence the presence of juvenile crime, comorbidity adds to complexity. There are two main issues that are commonly comorbid with juvenile crime, substance abuse and mental health diagnoses.

**Substance abuse.** There is a well-established link between juvenile offending and substance use (Chassin, 2008). In 2000, of the youth detained for criminal offenses, 56% of boys and 40% of girls tested positive for drug use (National Institute on Drug Abuse (NIDA), 2006). In 2002, 23.8% of the population of juvenile offenders, age 12-17, who had ever been detained or in jail, were classified with a substance use disorder. This percentage is triple that of the population of 12-17 year olds who had never been detained or in jail (Office of Applied Studies, 2003). Additionally, the juvenile justice system is the nation’s major referral source for
adolescents with substance abuse problems. Publically-funded substance abuse treatment centers report that 55% of male admissions and 39% of female admissions come from the juvenile justice system (Substance Abuse and Mental Health Services Administration (SAMSHA), 2007). According to a study examining a juvenile detention center, half of the males and almost half of the females within the center had a substance abuse disorder, with marijuana abuse being the most common (Teplin, Abram, McClelland, Dulcan, & Mericle, 2002). A second study examining a juvenile corrections center in Illinois found that two-thirds of the adolescents within the facility met the criteria for a substance use disorder diagnosis (Johnson, Ik Cho, Fendrich, Graf, Kelly-Wilson, & Pickup, 2004). The prevalence of substance abuse in the juvenile justice system and among youth offenders is high and has additional implications for this population including risk-taking behaviors.

Juvenile offenders who are using substances are at an increased threat for additional health risk behaviors. In one sample, 63% of youth with substance abuse disorders were found to have engaged in 5 or more sexually risky behaviors. These behaviors produced an increased incidence of HIV and other sexually transmitted diseases (Teplin, Elkington, McClelland, Abram, Mericle, & Washburn, 2005). Among youth populations who are substance users, there is also a tendency toward more violence, more accidents, and a greater risk for negative educational and occupational outcomes (King, Meehan, Trim, & Chassin, 2006; National Institute on Alcohol Abuse and Alcoholism (NIAAA), 2003). Juvenile offenders who are using substances have additional complications associated with this use, including academic failure, pre-existing learning disabilities, and parental substance use disorders (Teplin et al., 2005). Additionally, there is a high rate of family dysfunction, poorer treatment outcomes, and co-
occurring mental health disorders with this population (Rowe, Liddle, Greenbaum, & Henderson, 2004).

Based on these statistics, it is clear that adolescents who abuse drugs are at a much higher risk for delinquent behavior. The use of alcohol and illicit substances in and of itself is delinquent behavior. However, there is a strong connection between the use and abuse of substances and a multitude of other risk factors, including increases in committing violent and nonviolent crimes, participating in dangerous health behaviors (smoking, risky sexual behaviors), and academic and work failure. Statistics show that substance abuse is a strong predictor of participating in delinquent behavior. It is imperative to assess and interpret the substance abuse prevalence within the juvenile population in order to create a clear picture of juvenile delinquency.

**Mental health.** Mental health diagnoses are common among the population of youth found within the juvenile justice system (Cuellar, McReynolds, & Wasserman, 2006). Delinquent and criminal behaviors are found to be comorbid with many mental health disorders within the youth population. There is evidence that youth who have mental disorders are at greater risk of engaging in criminal behavior than youth without mental disorders (Grisso, 2008). More specifically, research indicates that juveniles with mental disorders make up a greater proportion of youth who had been arrested for serious and violent crimes (Huizinga & Jacob-Chien, 1998). Research confirms that there are many mental disorders that specifically increase the risk of aggression due to their emotional and self-regulatory symptomology (i.e., anger and impulsiveness; Grisso). This increase in aggression increases the risk that this population of youth will be arrested as juveniles and have a criminal career continuing into adulthood.
There are several mental health disorders common in a youth population with tendencies towards aggressive behavior. Research has documented that juveniles with affective (mood) disorders have an increased tendency for anger, irritability, and hostility (Knox, King, Hanna, Logan, & Ghaziuddin, 2000). These affective disorders are commonly depressive disorders and have been found to be present in 10-25% of the population of youth within the juvenile justice setting (Teplin et al., 2002). The expression of depression in youth is not necessarily the same as that for adults. Many depressed youth will present with irritability and high levels of anger which are associated with higher risk for aggressive behaviors. Rates of anxiety and depression in juvenile delinquents have been found to exceed rates that are found within the general population. In some cases the prevalence rate has been found to be twice that of the general population (Wasserman, McReynolds, Lucas, Fisher, & Santos, 2002).

Youth with a diagnosis of Post-Traumatic Stress Disorder (PTSD), Attention Deficit Hyperactivity Disorder (ADHD), Conduct Disorder (CD), and Oppositional Defiant Disorder (ODD) have also been shown to have a tendency towards aggressive and impulsive behaviors (Grisso, 2008). There is circularity in linking CD and ODD with juvenile delinquent behavior. Approximately two-thirds of youth receiving a CD diagnosis already have a record of nonviolent or violent offenses (Kratzer & Hodgins, 1997). In fact, the diagnosis of CD relies, in part, on the presence of delinquent behaviors. Additionally, minor offenses that are common with CD often escalate over time to more serious forms of criminal behaviors (Henggeler & Sheidow, 2003).

The juvenile justice system, specifically, has been shown to hold many youth with comorbid mental health disorders. One study examined a community mental health facility over a period of 9 months. Youth within this facility were found to be two to three times more likely to have been referred from the juvenile justice system than youth within the general population.
(Vander Stoep, Evans, & Taub, 1997). Studies have shown that, among varying types of juvenile justice facilities, one-half to two-thirds of juveniles meet the criteria for one or more mental disorders (Teplin et al., 2002; Wasserman et al., 2002).

**Racial/ethnic disparities.** One of the more difficult issues within the justice system is that of racial/ethnic and gender disparities. A disparity exists when youth who are similar with respect to certain attributes, such as race and ethnicity or gender, are given a different sentence despite the similarity of the crime (Spohn, 2000). There is clear evidence that racial/ethnic disparities exist within the justice system at both the state and federal levels. This is true for both adult and juvenile offenders. A study of sentences imposed on adults in state courts nationwide in 1994 found that 55% of African Americans within the courts were sentenced to prison, but only 42% of Caucasians were sentenced to prison for similar crimes. Additionally, the sentencing was, on average, longer for the Black individuals than for those who were white, despite similarities in the severity of the crimes committed (US Department of Justice (DOJ), 1998a). At the Federal level, 74.3% of adult white offenders convicted in Federal District courts during 1996 were sentenced to prison. In contrast, 84.9% of African American offenders and 80.2% of Latino offenders were sentenced to prison, again despite similarities in crimes (US DOJ, 1998b). A review of 32 studies on adult sentencing decisions within the state court system and 8 studies within the Federal court system examined the prevalence of disparities (Spohn, 2000). Throughout the extensive review, it was found that Black and Latino offenders are more likely than white offenders to be sentenced to prison.

The same is true for juvenile offenders. Specific to juveniles, this disparity was most common among young males who were unemployed. Evidence showed that in some of the jurisdictions examined, the length of sentencing also fell into this same pattern. This racial/ethnic
disparity was also more common with certain types of cases, such as those convicted of drug offenses, those who had serious prior criminal records, and those who had victimized whites (Spohn, 2000).

The juvenile court system is like the adult system when examining the evidence for racial/ethnic disparities. Over the last 30 years, several studies have found evidence of racial discrimination with juvenile offenders (Aday, 1986; Bishop & Frazier, 1988; Horowitz & Pottieger, 1991). One aspect that is overlooked, however, is how court officials’ perceptions of juvenile offenders actually give legitimacy to racial disparities. Race can play a part in the assessment of the dangerousness of an offender and how likely the offender is to offend in the future (Bridges & Steen, 1998). When minority offenders are stereotyped as chronic criminal offenders, they are seen as more villainous and deserving of more severe punishment (Peterson & Hagan, 1984). An anecdote illustrates this disparity. A Western US juvenile probation department was tracked over several years in regard to the number of referrals with which a juvenile had been charged prior to incarceration in a state-run secure facility. Blacks were sent after 3 referrals, Latinos after 8, and whites after 16 (S. Weber, personal communication, May 23, 2013).

**Gender disparities.** Disparities may be common in regards to race and ethnicity, but they also exist between genders. The view of female juvenile delinquency, specifically, has changed over the last 20 years. From 1985 to 2002 the number of female cases within the juvenile court system increased by 92% (Snyder & Sickmund, 2006). Over that same time, male arrest rates either decreased or increased less than females. Research suggests that this increase in female offenders may not be in response to more female delinquent behavior, but may be due to changes in how law enforcement views delinquent girls in policy and practice (Feld, 2009).
Gender disparities are not as prevalent as racial/ethnic disparities, and there are several studies that find no gender bias in the juvenile court system. Differences instead are linked to the type and severity of crimes, not to gender (Fenwick, 1982). There is, however, a disparity specific to females, labeled “paternalistic justice” (Chesney-Lind, 1988). Paternalism is the concept that females who behave in a way that is congruent with traditional female roles receive preferential and more lenient treatment, while those who violate these standards may receive a more severe punishment compared to males who have committed the same offense (Horowitz & Pottieger, 1991).

An additional consideration in regards to disparities is the combined effect of both racial/ethnic and gender factors. There is limited research regarding women of differing races, but a few studies have found that white women are treated more leniently than Black women within the court system (Pawlak, 1977; Visher, 1983). Overall, there are many examples of disparities within the adult and juvenile justice system.

Research has identified many flaws within the juvenile justice system, specifically in regards to disparities in race/ethnicity and gender, the lack of consistency between states, and a move toward a more punitive system. Although the Office of Juvenile Justice and Delinquency Prevention (OJJDP) has made strides in attempts to address some of the nationwide issues, there is still much work to be done within the juvenile justice system, much of it at the local level. Due to these gaps, additional research is needed in regards to understanding the predictive factors in juvenile offending. Highlighting clear predictors would allow the OJJDP to implement evidence-based/best-practice treatment models that address these specific needs.

**Summary.** The complexities that surround juvenile criminal behavior and juveniles within the criminal justice system are numerous. The stages of emotional and cognitive
development of adolescence, the systemic factors, and frequency of comorbid disorders that surround youth offenders combine to create a population that is multifaceted. The previous section outlined these facets and gives information on the importance of having a broad understanding of individual juvenile offenders. These facets of juvenile crime are all major factors in the trajectory of delinquent behavior over time and help to create an understanding of the criminal career framework.

**Delinquency Trajectory**

It is important to understand the varied trajectories of juvenile delinquency in the context of the theories available to explain how and why delinquency develops over time. It is essential to have an understanding of these trajectories in order to address topics of juvenile crime prevention and intervention. If the likely trajectory can be predicted, based on an integration of information about risk factors, then there is a greater likelihood of effective prevention and successful intervention with juvenile criminal behavior.

The delinquency trajectory is how an individual’s delinquent behavior develops over time. It tracks when the delinquent behavior begins, the path along which it continues, and where it ends. Research points to the importance of examining delinquency trajectories in an attempt to create more appropriate and successful ways to intervene to impede juvenile crime. The goal for trajectory researchers is to increase understanding of offending patterns over the developmental life course (Livingston, Stewart, Allard, & Ogilvie, 2008). The “criminal careers” framework is a way of examining both the continuity and changes of criminality over time. A criminal career consists of the pattern of onset, frequency, specialization, and desistance of criminal activity over the life course (Piquero, Farrington, & Blumstein, 2003). Additionally, this framework includes
how dynamic risk factors that occur over the life course are related to specific pathways of
criminal behaviors (Farrington, 2003).

A developmental framework of adolescence is an important aspect in understanding
delinquency trajectories. In a broad sense, developmental approaches take into account
transitions and changes over the life course and focus on how differing pathways lead to multiple
outcomes (Elder, 1994). This approach is more fluid and phase-oriented in contrast to a focus on
a more fixed progression towards adulthood. A developmental framework takes into
consideration the offending behaviors through examining long-term patterns and sequences of
behavior, and it highlights normative and non-normative behavior (Sampson & Laub, 2005;
Livingston et al., 2008). Additionally, this approach examines how certain pathways lead to
successful adaptation or lack of adaptation in regards to arriving at particular outcomes within
the life course (Wiesner, Kim, & Capaldi, 2005). This focus on development helps to create
knowledge of differing trajectories of delinquency and gives an understanding of uniformity or
variability across particular trajectories (Wiesner et al., 2005).

Theories of trajectory. There are several theories of delinquency trajectory used to
explain both continuity and change in delinquent behavior throughout the life course. Within
these theoretical models, there are two differing schools of thought in regards to how this
behavior develops and continues: population heterogeneity and state dependence (Brame,
Bushway, Paternoster, & Thornberry, 2005). Population heterogeneity theories see the trajectory
as a static process in which individuals are prone to aggressive and criminal behavior from an
early age (Cernkovish & Giordano, 2001). An example of a theory in this school of thought is
Gottfredson and Hirschi’s (1990) self-control theory. This theory states that individuals have a
propensity for criminal behavior through low self-control behaviors that are established very
early in life and remain stable as the individual develops. This propensity differs in intensity
between individuals and is also a function of age. This low self-control leads to criminal
behaviors (Gottfredson & Hirschi).

The second school of thought within the delinquency trajectory literature is state
dependent. State dependence explains criminal behavior as a dynamic process in which current
history of criminal and non-criminal behaviors alters the probability of future offending.
Continuity of delinquent behavior is not a function of age as much as a process of corruption or
contagion over time (Nagin & Paternoster, 2000). This view focuses on the variability of
criminal behavior over time and the collective effects that a variety of factors can have on
behaviors throughout the life course (Nagin & Paternoster). An example of a state dependent
theory is Thornberry’s (2005) interactional theory. This theory emphasizes the significance of
social controls and how they influence criminal behavior. The involvement in criminal behavior
weakens an individual’s attachment to prosocial individuals and organizations leading to an
increased probability for future offending (Thornberry). Patterson’s (1982) model of coercive
behaviors in childhood leading to delinquency also fits the category of theory.

Theories of delinquency trajectory have also included a combination of both population
heterogeneity and state dependency. These integrated theoretical frameworks explain delinquent
behavior over the life-course through both a propensity for antisocial behaviors early in life and
the cumulative effects of past experiences on present and future offending (Brame et al., 2005).
One example of an integrated framework is Sampson and Laub’s (2005) age-graded theory of
social control. This theory states that crime is more likely to occur when an individual’s
connection to society is weakened and when social control is lacking. According to this theory,
low social control influences behavior to varying extents at different life stages and interacts with the individual’s tendency to engage in criminal behavior (Sampson & Laub).

A second example of an integrated theory is Moffitt’s (1993) taxonomy theory. This theory states that there are two distinct offending patterns that an individual can take, each with a distinct theoretical explanation. These two trajectories are the Adolescent Limited (AL) type and the Life-Course Persistent (LCP) type. The AL offenders are characterized by offending patterns which are caused by proximal factors that begin in puberty and end in early adulthood. Under the AL path, the criminal behavior is thought to be normative for the adolescent who discontinues the delinquent behavior in early adulthood (Moffitt). The LCP offenders are a smaller group of individuals who continue to engage in antisocial behavior over time, with the manifestation of these behaviors occurring early in life. The etiology of these early life behaviors is a combination of factors that combine to result in deficits in temperament and in behavioral and cognitive development (Moffitt). These deficits lead the individual to a lifetime of negative reciprocal exchanges between the social environment, which solidifies their antisocial behaviors. Moffitt argues that LCP offenders typically begin their delinquent behaviors prior to age 14, contrasting their continuing pattern with that of AL offenders whose delinquent behavior begins later and ends in late adolescence-early adulthood.

The extent to which these trajectories predict outcomes in later life has not been widely studied. However, Piquero, Farrington, Nagin and Moffitt (2010) have followed males into middle age, beginning at age 8 and concluding at age 40. Using a sample of 411 men, it was found that heterogeneity of criminal behavior predicted life failure at age 48. Life failure is defined by failure to have satisfactory accommodations (home), limited and unsuccessful cohabitation history, poor employment history, continued involvement in fights, sustained
alcohol and drug use, high rates of self-reported offenses, poor mental health, and repeated convictions. These findings suggest 1) that chronic offending is associated with life failure into the late 40’s and 2) that different trajectories have different outcomes in midlife.

An additional study examining later life effects of delinquency trajectory, specific to Moffitt’s taxonomy theory (1993), examined males and females on four trajectory paths and how these paths directed their lives to age 32 (Odgers et al., 2008). The trajectories included life-course-persistent (LCP), adolescent-onset (AL), childhood-limited, and low trajectory. At age 32, men and women who were on the LCP pathway were engaging in serious violence with deficits in mental and physical health and economic problems. Findings again suggest that developmental trajectories of antisocial behavior influence males and females in later adulthood. These results are similar to Joan McCord’s 50-year follow up the participants in the Gluecks’ original study. McCord found that the “treatment” group had a higher likelihood of continued offending. It was reported that often these “treatment” modalities actually did more harm than good (Dishion, McCord, & Poulin, 1999).

The current research on delinquency trajectories has valued the integrated approach models such as that of Sampson and Laub (2005). There is a breadth of empirical evidence that indicates the importance of both individual differences in criminal propensity and individual life events and experiences (Brame et al., 2005). Piquero (2008) examined over 80 studies that used trajectory analysis. Piquero reached four main conclusions: 1) consistent with Moffitt’s (1993) taxonomy theory, the research identifies at least two main offender trajectories that exist within the literature. These include an adolescence-peaked pattern and a chronic-offender pattern, with additional support for a third group of late-onset chronic offenders. 2) There are many (3-5) differing offending subgroups that exist within the population of individuals who express
delinquent behaviors. 3) Studies with sample sizes greater than 500 provide substantial
categorization of these offender groups. 4) There is a low rate group, a high rate group, and
moderate but declining group of offenders present within the literature (Piquero). Throughout the
literature there is evidence for an integrated model of delinquency trajectories that takes into
account individual differences and individual life course experiences. Additionally, there is
evidence to support that there exist multiple trajectories that individual youths can take as their
delinquent behavior develops over time.

Understanding the trajectory of delinquent behavior is directly related to how
delinquency affects society as a whole. As delinquent behavior develops over time, there is a
greater cost to society. An individual juvenile who commits more crimes and possibly more
severe crimes throughout the life trajectory will have a much larger negative influence on
society.

**Cost to Society**

Juvenile crimes have many different costs. There are emotional and relational costs to the
family and friends of the individual offender and to the family and friends of the victims of the
crime. These are very real negative influences that juvenile crime has on the microsystems
involved. However, there is an additional societal cost that extends beyond the family and friend
systems and into the macro system of society (Cohen, 1998). There is a real monetary cost to the
societal system that arises from each individual juvenile offender. Cohen estimated the cost of a
single juvenile offender over the course of a criminal career at nearly 1.5 million dollars. More
recently, the cost of a juvenile offender’s criminal career was estimated at 1.4 million dollars
(DeLisi & Gatling, 2003). When estimating the social cost of a juvenile offender committing the
most serious of crimes and frequently offending over 15 years, the cost can rise to approximately
36 million dollars (Cohen). These costs come from a combination of expenses including investigation, incarceration, probation, and court costs. Juvenile offenders are such a high cost to society because they begin their criminal careers early, and may continue their careers into adulthood (Moffitt, 1993). Adult crimes also tend to be more severe, and thus include even more expense (Cohen, Piquero, & Jennings, 2010). Due to this monetary cost to society, there is great value in being able to stop young juveniles at the beginning of their careers.

The monetary costs for victims of juvenile crime are also potentially very high (Aos, Phipps, Barnoski, & Lieb, 2001). For a single murder victim, monetary costs were estimated at 1 million dollars with an additional 2 million dollars for quality of life. Total costs for other crimes were also estimated: for a single sex offense, $180,236; for a robbery, $100,966; and for an aggravated assault, $66,273 (Aos et al.). The combination of costs from the offender, the system, and the victims leads to a large monetary expenditure for incidents of juvenile crime. There is a clear understanding that juvenile delinquency has a high cost to the society. However, how is society addressing this issue? The Federal, state, and local governments have put into place a specific system in an attempt to create balance in society as a reaction to this cost. Additionally, the government sees the opportunity for rehabilitation within a juvenile population, based on their developmental stage. The juvenile justice system has been created in an attempt to balance the cost to society and create change within the individual offenders.

**Juvenile Justice Systems**

The early history of juvenile justice begins in the 1700s when the United States law was heavily influenced by the common law of England (American Bar Association (ABA), retrieved April 28, 2013). William Blackstone was an English lawyer who published the “Commentaries on the Laws of England” in 1760. This document was the first to identify a difference between
adult and “infant” common law. Within the documents, Blackstone established that there are two things required to hold a person accountable for a crime; 1) The person had to have vicious will or intent to commit a crime and 2) a person had to commit an unlawful act. Infants were considered unable to have intent to commit a crime and were classified as children under the age of 7. Children that were 14 years and older were liable to be charged as adults if they committed a crime. The ages of 7-14 years were considered a gray area and were handled on a case by case basis (ABA).

During the 19th Century, the treatment of juveniles in the United States began to change (ABA, 2013). Social reformers of that time began to create facilities specifically for juvenile offenders. Examples of these were the Society for the Prevention of Juvenile Delinquency in New York City (1825) and the Chicago Reform School (1855). In 1899, the first juvenile court was established in Cook County, IL. The early juvenile courts and the juvenile facilities shared the same desire for rehabilitation rather than punishment. The courts were based on the legal document “Parens Patriae” which translated to “parent of the country”. This document gave the state the power to serve as the guardian for those with legal disabilities (ABA).

Juvenile justice was supported in the 19th Century by upper and middle class white reformers in response to the growing threats of an increase in urban poor and European immigrants (Feld, 1999b). The intent of these first juvenile systems was to remove youth populations from “criminogenic” environments and families to resocialize them into a system with middle class values (Pickett & Chiricos, 2012). Juvenile justice was developed with the ideal that adolescents who participate in criminal behaviors need to be treated differently than adults due to their physical and cognitive developmental limitations (Pickett & Chiricos). Science and technology have led to a greater breadth of knowledge about the developing brain of
the juvenile population. These physical and cognitive limitations have led the Federal Office of Juvenile Justice and Delinquency Prevention (OJJDP) to conduct their services with a lens of rehabilitation as there is hope that delinquent youth can change throughout the continuing development in their adolescence.

**Goals of the Federal Office of Juvenile Justice and Delinquency Prevention.** The mission of the OJJDP takes a balanced approach to providing rehabilitation and treatment, but also addresses the need for accountability and keeping communities safe from juvenile offenders. The OJJDP has many specific goals. These goals are carried out through two branches: Policy and Programs. The Policy Branch of the system coordinates national policy on juvenile justice, and advises the OJJDP Administrator on legal issues and how to best accomplish the mission. The Policy Branch also oversees research, training, technical assistance efforts, agency communication, and planning of activities. The Programs Branch is broken down into three areas; Child Protection Division (CPD), Demonstration Programs Division (DPD), and State Relations and Assistance Division (SRAD). The CPD develops and administers programs related to crimes against children and children’s exposure to violence. Additionally, it has a focus of providing leadership and funding for areas of enforcement, intervention and prevention in regards to child protection programming. The DPD provides funding to public and private agencies, individuals, and organizations to help in the development of programs and to replicate tested approaches to delinquency prevention and intervention. Specific areas include mentoring, substance abuse, truancy, gangs, chronic juvenile offending, and community-based sanctions. The SRAD provides funding to help state and local governments implement programs and policies, including combating underage drinking, delinquency prevention programs, addressing
disproportionate minority contact, and supporting initiatives to increase accountability (US DOJ, 2010).

Resources are made available for each state to stay within the framework of the OJJDP national model and adhere to the mission and the goals outlined. One of the major national goals is for all states to utilize evidence-based practice. In 2000, the Model Programs Guide was created as an online database of nationally-approved programs (US DOJ). States are encouraged to use this site to help in creation of programming for their juvenile population. The OJJDP is working toward increasing grant dollars for evidence-based treatment and prevention programming. Additionally, the national office works collaboratively with the private sector to create alternative initiatives to the detention centers moving toward less of a punitive approach to treatment (US DOJ). It is the responsibility of each state to conform to the standards of the OJJDP by using the model programs guide. States are often structured differently with oversight and responsibility being distributed among local cities, counties, and private entities thus making standardization difficult to achieve.

Efficacy. There has been recent research that points out specific flaws and failures within the national juvenile justice system. Within the last four decades, the OJJDP has moved away from an understanding of juvenile development and has enacted policies that move toward treating juvenile offenders as adults (Pickett & Chiricos, 2012). The move to a more punitive focus has resulted in increased radicalizing of delinquency (Feld, 1999a). According to Feld (2003), there has been a constant shift away from rehabilitation and having the child’s best interest to enhancing public safety and punishing offenders. This change in focus can be seen in states altering their purpose clauses to place higher values on public safety and accountability, a reduction in confidentiality for juvenile offenders, an increase in the severity of sentences given
to juvenile offenders, and the opening of the first maximum security prison for youth offenders (Snyder & Sickmund, 2006). This move to a more punitive focus on juvenile crime has strayed from the declared mission of the OJJDP to strive to create a balance between accountability and public safety, as well as rehabilitation and taking the development of the juvenile into account.

An additional flaw that has been identified is the discrepancies between race/ethnicity and gender in regards to court decision making and case dispositions (Schwalbe, Fraser, Day, & Cooley, 2006). The juvenile justice systems in many states have adopted structured risk assessment instruments that are designed to reduce racial, ethnic, and gender biases in an attempt to increase the consistency of assessment of the juvenile offenders. Unfortunately, there is evidence that these risk assessments may not increase consistency in treatment by gender or race/ethnicity. One study (Schwalbe et al.) examined the North Carolina Assessment of Risk (NCAR) which is a risk assessment that has a similar structure and similar content as many brief risk assessments throughout the country. Results of this study indicated that the predictive validity differed both by race/ethnicity and by gender, leading to discrepancies, such as under-predicting recidivism for African American youth and a lack of findings correlating risk factors and recidivism for females (Schwalbe et al.). These risk assessments may be inadvertently creating systematic biases within the juvenile justice system.

**Predicting recidivism.** Recidivism is a significant area of concern for the juvenile justice system. Recidivism is repeating a behavior following the experience of negative consequences and, presumably, being trained to avoid that behavior. One of the focuses of research within the OJJDP is predicting recidivism in an attempt to curb repeat offenders and lower rates of juvenile delinquents within the system (US DOJ, 2010). There is an extensive literature that identifies the juvenile justice system’s use of past criminal history and static factors (e.g., age) as the main
predictors of recidivism (Gendreau, Little, & Goggins, 2006). Criminal history is defined as the offenses that the individual has committed throughout his/her criminal career. Static factors are stable factors such as gender, age, race/ethnicity, etc. The combination of criminal history and static factors gives the juvenile justice system an idea of whether an individual will be at risk for repeat offending once they leave the juvenile facility. They can give some capacity to predict; however, alone, they may not yield the most accurate approach.

One of the most significant gaps that exists within the OJJDP in fulfilling their mission is a lack of identifying and understanding dynamic factors in regards to predicting recidivism. Dynamic factors are non-static factors that vary by individual. Examples of these factors include family, community, school, peer groups, environment, substance use, and mental health. These factors embody the complexities of juvenile crime outlined previously. It is essential to have a broad spectrum picture of each delinquent individual and the complex dynamic factors and comorbidities that are present. This picture needs to include both static and dynamic factors in order to gain a more accurate understanding of each individual, a parallel to the theories regarding trajectories that include both population-heterogeneity and state-dependent approaches (Livingston et al., 2008). Currently the juvenile justice system does not emphasize the importance of dynamic factors in the prediction of recidivism. Once dynamic factors are combined with criminal history and static factors, it may be possible to create more accurate predictions and facilitate the creation of best-practice interventions for these individual delinquent offenders. Based on the literature on juvenile crime and delinquency, it is important to have a clear and broad understanding of the dynamics of youth offenders. The addition of dynamic factors is an essential element in the creation of best practices and stronger rehabilitation programming.
Purpose of the Current Study

The purpose of the current study was to use longitudinal data to help identify dynamic factors as dynamic factors of arrest for violent criminal behaviors in combination with control (static) variables and criminal history. These variables will be applied to predicting, arrest for violent and nonviolent crimes, arrest for most serious crimes (Felony 1 and 2), and whether the first arrest after age 17 was for violent or nonviolent offenses. Based on the previous literature, it is clear that each juvenile offender has a multitude of factors and complexities that are involved in the incidence of delinquent behavior. Understanding the developmental stage of the adolescent, influencing factors, comorbidities, and the trajectory of each youth in combination with controlled variables such as age and ethnicity is essential in creating more accurate predictors of juvenile delinquent behavior and recidivism.

Currently the OJJDP does not include the dynamic factors that have been outlined in this review of literature in their efforts of rehabilitation and treatment. Based on current and past research literature, a more complete combination of predictor (dynamic) variables and control (static) variables should create more accurate predictions. Specifically, this study addressed the following questions: a) do certain dynamic variables predict being arrested for violent or nonviolent crimes, b) can these dynamic factors be used to predict arrests for a more serious level of offense (Felony 1 and 2), and c) can these dynamic factors be used to predict the type of first arrest (violent vs. nonviolent) after the age of 17? The importance of these dynamic factors in the prediction of severity and level of delinquency was examined and assessed in comparison to the static variables, gender and race/ethnicity.

Hypotheses
Hypothesis 1: Data on dynamic factors (e.g., family relationship) collected in adolescence will predict arrests for criminal behavior.

Hypothesis 1.1: Dynamic factors can be used to predict arrests for violent criminal behavior.

Hypothesis 1.2: Dynamic factors can be used to predict arrests for nonviolent criminal behavior.

Hypothesis 2: Data on dynamic factors (e.g., family relationship) collected in adolescence will predict arrests for the most serious criminal behavior (Felony 1 or 2).

Hypothesis 2.1: Dynamic factors will predict arrests for the most serious level violent criminal behavior (Felony 1 or 2).

Hypothesis 2.2: Dynamic factors will predict arrests for the most serious level nonviolent criminal behavior (Felony 1 or 2).

Hypothesis 3: Data on dynamic factors (e.g., family relationship) collected in adolescence will predict the nature of the first arrest after age 17.

Hypothesis 3.1: Dynamic factors will predict the likelihood that the first arrest after age 17 is for a violent crime.

Hypothesis 3.2: Dynamic factors will predict the likelihood that the first arrest after age 17 is for a nonviolent crime.
CHAPTER III: METHODS

The purpose of this study was to examine predictors of the trajectory of delinquency from adolescence to early adulthood. This study was conducted in two phases. In the first phase, students, age 10-17, in attendance of an alternative education program located in West Texas, were recruited. Data was gathered between the years of 2001 and 2007. Information was gathered on delinquent behaviors, substance abuse, general family functioning, parent and peer attachment, and symptomology. The second phase was conducted in 2010. The Texas Department of Public Safety: Crime Records Service (TDPS) was contacted, and the criminal records of this same group of now early adults were gathered. The use of a binary logistic regression analysis was used to understand and clarify predictors of delinquency. Table 3.1 includes the statistics for the measures used in the study. Table 3.2 provides demographic data for the study sample. Table 3.3 summarizes the arrest data for the study sample.

Sample

**Phase I.** A sample of 311, 10-17 year old adolescents was taken from a juvenile justice alternative education program (JJAEP) in West Texas from 2001-2007. All students within the JJAEP were eligible to take part within this first phase of the study. Prior to entry, informed consent was obtained from each parent or legal guardian who gave permission for their child to be involved in interventions and research throughout their stay at the JJAEP.

**Phase II.** Twenty-one of the 311 participants had arrest records in 2010, but specific descriptions were not available. These files were removed from the data set for Phase II. The second phase of the study included 290 of the original students, 3-9 years after initial data collection. All of these participants had a history of one or more referrals to the juvenile justice
system, but not all had been arrested and charged. The criminal arrest records of these 290 were made available by the TDPS.

**Demographic Characteristics**

**Phase I.** The mean age of the sample was 14.4 years with a standard deviation of 1.5 and a median age of 15. The range was 10-17 years of age. The ethnic makeup of the sample was: Latino/a 166, African American 105, and Anglo 40. There were 258 males and 53 females.

**Phase II.** The demographics for the Phase II sample arrest record varied only slightly due to the difference in sample size and the exclusion of the 21 youth with nonspecific arrest records. At the time of initial data collection, the mean age of the sample was 14.5 with a standard deviation of 1.5 and a median age of 15. At the time of the record check (Phase II), the mean age of the sample was 23.9 years with a standard deviation of 2.5 and a median age of 24.2 years. This final sample consisted of 150 Latinos/as, 102 African Americans, and 38 Anglos (non-Hispanic whites). The sample included 244 males and 46 females (see Table 3.1).

**Setting**

Data from the participants were gathered from a JJAEP in a city of approximately 200,000 residents in West Texas. The JJAEP is an alternative educational school for students from county and city public schools involved in high-risk or criminal behaviors. By state mandate, all Texas counties with more than 125,000 residents must have a JJAEP in place for students who participate in either conduct punishable as a felony or serious/persistent misbehavior (Stiles & Thevenot, 2010). This is an alternative to the expulsion or suspension of students who are mandated to participate in this program. The purpose of the JJAEP is to help continue the education of the students and provide rehabilitation services in order to reintroduce
the students to the school from which they were sent. Each JJAEP varies in terms of philosophy and strategies for rehabilitation.

The JJAEP from which the current data were collected is operated as a version of the adult boot camp. The facility is a day school and students arrive at 7:45am for calisthenics and are dismissed at 3:30pm. Students take part in educational classes throughout the day, marching in line from one class to another. All students are mandated to wear brown jump suits, and are supervised by officers (“drill instructors”) whose tasks are similar to those in adult correctional facilities. Students were required to run laps and do pushups as punishments for misbehavior. A probation officer visits the facility several times throughout the week to speak with students, regardless of their probation status. In addition to classes, students were mandated to have weekly meetings with a student therapist from a local university’s marriage and family therapy program. Students finished out the school year at the JJAEP, typically spending several months at the facility.

**Procedure – Initial Assessment**

Data collection. Data collection had two purposes: 1) to provide the JJAEP Director and School Counselor with information related to treatment planning and 2) to provide a database for subsequent research. In small groups, data were collected from JJAEP students within the first 2 weeks after admission. Due to the minor status of participants, informed consent was obtained from parents or guardians upon admission to the JJAEP (see Appendix A). Students were given a short verbal introduction to the evaluation packet, including the purpose for the research. Each student was given a packet of questionnaires. The packet consisted of the Youth Self Report (Achenbach, 1966), General Family Functioning Scale from the Family Assessment Device (Epstein, Baldwin, & Bishop, 1983), Inventory of Parent & Peer Attachment (Armsden &
Greenberg, 1987), Children’s Depression Inventory, Conflict Tactics Scale – verbal items only (Straus, 1979), and the Brief Symptom Inventory (Derogatis & Melisaratos, 1983) (see Appendix B). The test administrator was available to answer any questions participants might have (e.g., word clarification, meaning of a question). On several occasions, students struggled with reading. If reading assistance was needed, the test administrator would read each item to the student and fill in the answers selected. If additional assistance was needed within a small group of students, special accommodations were made to ensure privacy of the student needing help.

Once packets were completed the assessments were sent to the clinical/research supervisor. The answers were then entered into a research database and scored. After the clinical/research supervisor had provided feedback on test results to the school counselor/director, all hardcopy packets were locked in a filing cabinet. The computerized database was password protected for confidentiality purposes. The clinical/research supervisor and his personal research assistants were the only ones with access to the raw data.

Procedure - Collecting Arrest Records

Data collection. The second phase of the research began with the research director making contact with the Texas Department of Public Safety: Crime Records Service (TDPS) in order to gain detailed information on the crime report data (arrest records) of the original 311 students from the JJAEP. The arrest records were considered public information. The purpose of this was to gain information as to whether these students had entered the arrest record system. To gain access to this information, the researcher sent the TDPS the name, date of birth, and social security number of each participant. This information was kept confidential between the researcher and the representative of the TDPS. A text file was then sent to the primary researcher and supervisor that included the arrest dates, charges, and degree of severity (e.g., felony vs.
misdemeanor) for each charge. Within the text file, each arrest was identified, along with all charges made at that arrest. Each charge then had information describing the specific classification of that charge. Of the original 311 participants from the JJAEP, 21 had arrest records, but their files lacked any specific description. These files were removed from the data set. Data from a total of 290 participants were available in Phase II.

**Combining data sets.** Once the TDPS text file was cleared of extraneous information, that file was merged with the original self-report data collected at the JJAEP. The purpose of the merging was to have all information on each participant in one data set within SPSS. Once the data files were merged, each participant was assigned a random number and all identifying information was removed, with the exception of gender, race/ethnicity, and birth date. The master list of names and random numbers were kept locked in a file cabinet in the supervisor’s office.

One aspect of the participant data that was missing within the data set was the date of first referral to the juvenile justice system. The original self-report data included participants who had been in the system for a varying number of years and the data of their first referral to the juvenile system was not included. To obtain this specific information, a list of names, birthdates, social security numbers, and the random number that had been assigned to each participant was sent to the juvenile justice department, with a request for a report of first referral into the juvenile justice system. The juvenile justice department staff entered the date of first referral and removed the participants’ names, birthdates, and social security numbers. The primary researcher then received a list of the participants with only their random assigned numbers and their date of first referral to maintain anonymity; therefore, informed consent was not needed. This information
was then added to the data set which now included the self-report data, the crime report data, and the date of first entry into the juvenile justice system.

**Instruments**

The packet used in the self-report data collection included six assessment tools: Youth Self Report, General Family Functioning Scale, Inventory of Parent and Peer Attachment, Children’s Depression Inventory, Conflict Tactics Scale, and Brief Symptom Inventory. Each assessment was designed to gain information regarding differing aspects of the participant’s lives including individual mental health, behavior, and family and peer relationships.

**Youth Self-Report.** The Youth Self-Report (YSR) is a widely used scale designed to assess adolescents’ behavioral and emotional problems (Achenbach, 1966). This is a self-report assessment for adolescents, age 11-18 years. The questionnaire consists of 119 items that ask whether participants have experienced certain problems within the past 6 months. Each item is rated on a three point scale: 0 (*not at all true*), 1 (*sometimes or somewhat true*), and 2 (*very true or often*). The YSR is a reliable and valid assessment (Song, Singh, & Singer, 1994). Several subscales were combined into the Externalizing Scale (Aggression, Delinquent Behavior) or Internalizing Scale (Withdrawal, Anxiety/Depression, Somatization). These two scales were used in the present study. Ebesutani, Bernstein, Martinez, and Chorpita (2011) found that, with a youth population of 11-14 year olds, the Cronbach α for both Internalizing and Externalizing scales was .89, well above the .80 standard for clinical assessments as established by Nunnally and Bernstein (1994).

**General Family Functioning Scale.** The General Family Functioning Scale is a 12-item subscale of the 60-item Family Assessment Device (FAD) (Epstein, Baldwin, & Bishop, 1983). This reliable and valid subscale provides a measure of the overall health and pathology of a
family (Byles, Byrne, Boyle, & Offord, 1988). The measure is divided into 6 questions representing healthy family functioning and 6 questions representing dysfunctional family functioning. Each question is rated using a scale of 1-4 (*strongly agree, agree, disagree, or strongly disagree*), with the healthy family items reverse scored. An item mean score of 2.00 or above on this scale indicates problematic family functioning. Cronbach $\alpha$ for this subscale of the larger Family Assessment Device has been found to be $\alpha = .92$ (Epstein, Baldwin, & Bishop, 1983). For the current study the General Family Functioning Scale yielded a Cronbach $\alpha$ of .75.

**Inventory of Parent and Peer Attachment.** The Inventory of Parent and Peer Attachment (IPPA) is a self-administered measure of parental attachment and peer attachment (Armsden & Greenberg, 1987). This assessment consists of 53 items scored on a 5-point Likert-type scale from 0 (*almost never or never true*) to 4 (*almost always or always true*). This reliable and valid assessment examines the child’s sense of attachment to the parent, related to adolescent family self-concept and perceived family cohesion, and attachment to peers, related to understanding adolescent social self-concept (Armsden & Greenberg). There are three subscales: Trust is usually combined with Communication, Alienation is then subtracted to yield a total score for parent or peer attachment. Good internal consistency has been reported on both parent and peer scales with Cronbach $\alpha$ coefficients ranging from .72-.91 (Armsden & Greenberg). Within the current study, subscales for the IPPA yielded Cronbach $\alpha$’s as follows, Parent Trust = .902, Parent Communication = .837, Parent Alienation = .832, Parent Attachment = .931, Peer Trust = .895, Peer Communication = .861, Peer Attachment = .930, and Peer Alienation = .606. Although Peer Alienation is less reliable than generally accepted, it was retained because it assesses more than one underlying dimension of peer alienation.
Children's Depression Inventory. The Children’s Depression Inventory (CDI) is a reliable and valid self-report assessment widely used to identify adolescents with and without depressive disorders (Kovacs, 1985). This scale consists of 27 items. Each item consists of three statements that are scored in severity. Each statement is assigned a numerical value from 0-2 (total possible score from 0-54) with higher scores being rated as greater levels of depression (Smucker, Craighead, Craighead, & Green, 1986). Smucker et al. found the Children’s Depression Inventory to be reliable with a sample of 369 junior high school students. The Cronbach \( \alpha \) for males is .83 and for females is .85. In the current study the reliability coefficient was found to be \( \alpha = .86 \), showing again the reliability of this measure.

Conflict Tactics Scale. The Conflict Tactics Scales (CTS) includes three dimensions, verbal reasoning, verbal aggression, and violence within the family (Straus, 1979). For the purposes of this study, only the 7 verbal aggression items were used, ranging from verbal attacks (“Insulted or swore at me”) to threats or intimidation with objects (“Threw or smashed or hit or kicked something”). These latter items focus on the use of verbal and non-verbal acts to distress or threaten another person. Participants were asked to respond by choosing how many times in the past year they had experienced those acts from their parents: never (coded as 0), once (1), twice (2), 3-5 times (3), 6-10 times (4), 11-20 times (5), more than 20 times(6). The maximum score for the 7 Parental Verbal Aggression (PVA) items is 42. This is a valid and reliable scale that assesses the level of verbal aggression with higher scores representing greater levels of aggression (Straus). The Cronbach \( \alpha \) value for the PVA scale ranges from .77-.79 (Straus). Within the current study, the reliability coefficient was .821 for Parental Verbal Aggression items.
Brief Symptom Inventory. The Brief Symptom Inventory (BSI) is a self-report assessment that measures differing levels of psychopathology (Derogatis & Melisaratos, 1983). The BSI consists of 53 items rated on a 5-point scale ranging from not at all (0) to extremely (4). The range of the BSI reflects differing degrees of distress related to nine different dimensions: Somatization, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, Hostility, Phobic Anxiety, Paranoid Ideation, And Psychoticism. This valid and reliable instrument is widely used. The BSI takes approximately 10-12 minutes to complete and has a minimum reading level of 6th grade (Boutlet & Boss, 1991). Broday and Mason (1991) found high internal reliability within each subscale of the BSI in a sample of 343 men and women. The Cronbach α’s were as follows: Somatization α = .77, Obsessive-Compulsive α = .79, Interpersonal sensitivity α = .85, Depression α = .88, Anxiety α = .82, Hostility α = .79, Phobic Anxiety α = .70, Paranoid Ideation α = .76 and Psychoticism α = .70. The current study yielded the following (similar) reliability coefficients; Somatization α = .837, Obsessive-Compulsive α = .836, Interpersonal Sensitivity α = .671, Depression α = .839, Anxiety α = .796, Hostility α = .821, Phobic Anxiety α = .752, Paranoid Ideation α = .713, Psychoticism α = .70. In general, the General Severity Index is considered to be the broadest and most reliable measure of psychological symptoms. In the present sample, the General Severity Index α was .966.

The dynamic factors used in this study are products of the instruments described. Variables used in analysis are summarized in Table 3.1 (n = 290)

Missing Data

The EM (Estimation-Maximization) algorithm was used to replace missing values in the dynamic variables (Dempster, Laird, & Rubin, 1977). This methodology formalizes an intuitive idea for attaining parameter estimates when some data are missing. The SYSTAT software was
used to replace missing values by estimated values. Of the 290 cases, Internalizing, Externalizing, and Parental Verbal Aggression scales were missing for 38 cases because of a decision to drop those measures from the assessment in the last year. Other than those cases, dynamic variable values were missing in fewer than 5% of cases. Tests of the imputation procedure were not significant, indicating an adequate EM fit for all variables. Therefore, all results reported are based on imputed data.

**Analysis**

Race/ethnicity was coded separately for African Americans (1=yes, 2=no) and Latinos/as (1=yes, 2=no). Prior to conducting the final path analyses (see below), two structural equation models (SEM) were examined (Figures 3.1 and 3.2) using M+ 5.0 (Muthen & Muthen, 2008). M+ was used because it allowed for the formation of latent variables to predict a categorical variable (arrest for violent offense vs. no arrest for violent offense; arrest for nonviolent offense vs. no arrest for violent offense) in an SEM analysis. In the original model (Figure 3.1), the dynamic factors were grouped into four latent variables (Parent-Child Relationship, Peer Relationship, Psychological Status, and Family Functioning) to predict the outcome variable of violent offenses (or nonviolent offenses). This model failed to converge with either a mean structure or maximum likelihood approach in M+. Following an exploratory factor analysis that identified 3 factors (Parent & Family, Psychological Status, and Peer Relationships), a second SEM was developed (Figure3.2) and tested with both a mean structure and a maximum likelihood approach. Model fit was poor for arrests for violent crimes ($\chi^2 (21) = 134.3$, CFI = .679, TLI = .664, RMSEA = .136), and the attempt to fit an SEM was dropped in favor of a path analysis.
Given the failure of the SEM approach, logistic regression was the best choice to predict a dichotomous outcome variable on the basis of a combination of continuous and categorical prediction variables (Garson, 2006). Maximum likelihood path logistic regression analyses were conducted to test each hypothesis using M+ 5.0 (Muthen & Muthen, 2008). This model (Figure 3.3) included 11 predictor (dynamic) variables and 3 control (static) variables (Gender, African American status, and Latino/a status). The dynamic factors were: Parent Trust, Parent Communication, Parent Alienation, General Family Functioning, Parental Verbal Aggression, Peer Trust, Peer Communication, Peer Alienation, Depression, General Severity Index, and YSR Internalizing. Gender was coded to center the variable (male, female; .5, -.5, respectively) as was ethnicity. African Americans were coded as .5, and non-African Americans as -.5. Latinos/as were coded as .5, and non-Latinos/as as -.5. All continuous variables were centered on their means. M+5.0 computes a “pseudo-$R^2$” (hereafter, referred to as $R^2$) that was used to evaluate the overall model for each logistic regression. In addition to examining each full maximum likelihood model with the $R^2$, significant logistic regression odds ratios were examined.

For the purposes of these analyses, outcome variables (arrest for violent offense or arrest for nonviolent offense) were coded 0,1. For Hypotheses 1.1 and 1.2, any arrest for a violent (nonviolent) crime was coded as 1; for Hypotheses 2.1 and 2.2, only arrests for a Felony 1 or 2 violent (nonviolent) crime were coded as 1; and for Hypotheses 3.1 and 3.2, only arrests for any violent (nonviolent) crimes committed after age 17 were coded as 1.
Table 3.1
 Variables used in analyses (N = 290).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Median</th>
<th>Skewness</th>
<th>Kurtosis</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Child Psychological Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internalizing (T-score)</td>
<td>54.73</td>
<td>11.62</td>
<td>54.00</td>
<td>.226</td>
<td>.106</td>
<td>26.00</td>
<td>92.00</td>
</tr>
<tr>
<td>Child Depression Inventory (T-score)</td>
<td>51.30</td>
<td>10.35</td>
<td>48.89</td>
<td>1.358</td>
<td>2.247</td>
<td>34.29</td>
<td>93.33</td>
</tr>
<tr>
<td>General Severity Index (T-score)</td>
<td>51.35</td>
<td>10.19</td>
<td>47.83</td>
<td>1.257</td>
<td>1.171</td>
<td>37.10</td>
<td>93.36</td>
</tr>
<tr>
<td><strong>Family Functioning Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Family Functioning (T-score)</td>
<td>61.86</td>
<td>12.41</td>
<td>60.50</td>
<td>.724</td>
<td>.612</td>
<td>36.28</td>
<td>98.29</td>
</tr>
<tr>
<td>Parental Verbal Aggression (raw)</td>
<td>12.56</td>
<td>9.61</td>
<td>10.36</td>
<td>.855</td>
<td>.138</td>
<td>0</td>
<td>41.00</td>
</tr>
<tr>
<td><strong>Parent Relationship Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent Trust (raw)</td>
<td>35.13</td>
<td>8.49</td>
<td>37.00</td>
<td>-1.003</td>
<td>.410</td>
<td>9.00</td>
<td>45.00</td>
</tr>
<tr>
<td>Parent Communication (raw)</td>
<td>28.70</td>
<td>7.54</td>
<td>30.00</td>
<td>-.655</td>
<td>-.343</td>
<td>8.00</td>
<td>40.00</td>
</tr>
<tr>
<td>Parent Alienation (raw)</td>
<td>28.93</td>
<td>9.51</td>
<td>28.00</td>
<td>.214</td>
<td>-.745</td>
<td>11.00</td>
<td>52.00</td>
</tr>
<tr>
<td><strong>Peer Relationship Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer Trust (raw)</td>
<td>33.85</td>
<td>8.55</td>
<td>36.00</td>
<td>-.714</td>
<td>-.083</td>
<td>9.00</td>
<td>45.00</td>
</tr>
<tr>
<td>Peer Communication (raw)</td>
<td>26.84</td>
<td>7.40</td>
<td>28.00</td>
<td>-.483</td>
<td>-.429</td>
<td>8.00</td>
<td>40.00</td>
</tr>
<tr>
<td>Peer Alienation (raw)</td>
<td>19.27</td>
<td>5.26</td>
<td>19.00</td>
<td>.289</td>
<td>-.544</td>
<td>8.00</td>
<td>32.00</td>
</tr>
</tbody>
</table>
Table 3.2

Demographic Description of the Sample (N = 290).

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>84</td>
</tr>
<tr>
<td>African American</td>
<td>35</td>
</tr>
<tr>
<td>Latino/a</td>
<td>52</td>
</tr>
<tr>
<td>Non-Hispanic White (Anglo)</td>
<td>13</td>
</tr>
<tr>
<td>Ever Arrested for Violent Offense</td>
<td>61</td>
</tr>
<tr>
<td>Ever Arrested for Nonviolent Offense</td>
<td>79</td>
</tr>
</tbody>
</table>
### Table 3.3
Age and Arrest Data.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Valid</th>
<th>Missing</th>
<th>Mean</th>
<th>SD</th>
<th>Median</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age at First Referral to Juvenile Probation</td>
<td>290</td>
<td>0</td>
<td>13.58</td>
<td>1.80</td>
<td>13.61</td>
<td>4.61</td>
<td>17.74</td>
<td>-.365</td>
<td>1.335</td>
</tr>
<tr>
<td>Age at First Arrest</td>
<td>248</td>
<td>42</td>
<td>14.27</td>
<td>2.57</td>
<td>13.88</td>
<td>9.88</td>
<td>23.18</td>
<td>1.072</td>
<td>1.288</td>
</tr>
<tr>
<td>Age at Testing</td>
<td>290</td>
<td>0</td>
<td>14.46</td>
<td>1.54</td>
<td>15.00</td>
<td>10.00</td>
<td>17.00</td>
<td>-.440</td>
<td>-.242</td>
</tr>
<tr>
<td>Age at Time of Record Check*</td>
<td>290</td>
<td>0</td>
<td>23.89</td>
<td>2.53</td>
<td>24.18</td>
<td>16.07*</td>
<td>28.75</td>
<td>-.480</td>
<td>-.249</td>
</tr>
<tr>
<td>Number of Arrests**</td>
<td>248</td>
<td>42</td>
<td>5.32</td>
<td>3.49</td>
<td>5.00</td>
<td>1.00</td>
<td>17.00</td>
<td>.804</td>
<td>.372</td>
</tr>
<tr>
<td>Number of Arrests for Violent Offenses</td>
<td>290</td>
<td>0</td>
<td>2.52</td>
<td>2.30</td>
<td>2.00</td>
<td>.00</td>
<td>6.00</td>
<td>.134</td>
<td>-1.591</td>
</tr>
<tr>
<td>Number of Arrests for Nonviolent Offenses</td>
<td>290</td>
<td>0</td>
<td>3.29</td>
<td>2.00</td>
<td>3.00</td>
<td>.00</td>
<td>6.00</td>
<td>-.496</td>
<td>-.945</td>
</tr>
</tbody>
</table>

*Two individuals were under the age of 17 when record checks were completed.

**If arrested.
Figure 3.1
Structural Equation Model I.
Figure 3.2
Structural Equation Model II (based on exploratory factor analysis).
Figure 3.3
Maximum Likelihood Path Analysis (same predictors used for nonviolent offenses)
Chapter IV: Results

Results

Hypothesis 1: Data on dynamic factors (e.g., family relationship) collected in adolescence will predict arrests for criminal behavior.

Hypothesis 1 was supported by the results of the path analysis. Both Hypothesis 1.1 (violent offense) and Hypothesis 1.2 (nonviolent offense) arrests were predicted by specific dynamic factors (see Table 4.1 and 4.2).

Hypothesis 1.1.

Hypothesis 1.1: Dynamic factors can be used to predict arrests for violent criminal behavior.

Odds ratios. The $R^2$ for the full maximum likelihood path model was significant ($R^2 = .110, p < .015$). The maximum likelihood path analysis yielded two significant logistic regression odds ratios (both raw scores): Parental Verbal Aggression (PVA) ($p < .008$) and Peer Alienation ($p < .045$). Peer Trust (raw score) was found to have marginal significance in the prediction of violent criminal behavior ($p < .072$). The logistic regression odds ratio for PVA was 1.047. Therefore, each unit increase in score on PVA (Conflict Tactics Scale) increased juvenile’s likelihood of being arrested for a violent crime by almost 5% (4.7%). The odds ratio for Peer Alienation is 1.074. Therefore, each unit increase in score on Peer Alienation (Inventory of Parent and Peer Attachment, IPPA) increased a juvenile’s likelihood to be arrested for a violent crime by almost 7.5% (7.4%). The marginally significant Peer Trust (IPPA), odds ratio of 1.049, indicated that for each unit increase in score on the scale a juvenile’s likelihood of arrest for a violent crime increased by almost 5% (4.9%). Results for Hypothesis 1.1 are summarized in Table 4.1.
**Verbal Aggression.** Applying the odds ratios to the range of scores found in this analysis, the increase in the likelihood of being arrested for a violent crime for each significant predictor variable was examined. Verbal Aggression scores ranged from 0-41 with an odds ratio of 1.047. With all other things being equal, the individual who scored a 41 on this scale was 193% more likely to be arrested for a violent crime than the individual who scored 0 (i.e., $41 \times 4.7\% = 193\%$). The individual who scored at the top of the range (41) was 133% more likely to be arrested for a violent crime than an individual whose score was near the mean of 13. The individual who scored a 0 was 59% less likely to be arrested for a violent crime than one scoring near the mean.

**Peer Alienation.** Within this study, Peer Alienation scores ranged from 8-32 with an odds ratio of 1.074. The individual who scored a 32 on this scale was 178% more likely to be arrested for a violent crime than the individual who scored an 8. Thus, the individual who scored at the top of the range (32) was 94% more likely to be arrested for a violent crime than an individual whose score was near the mean of 19. The individual who scored an 8 on the scale was 83% less likely to be arrested for a violent crime than an individual who scored near the mean.

**Peer Trust.** The marginally significant variable of Peer Trust had scores that ranged from 9-45 with an odds ratio of 1.049. The individual who scored a 45 on this scale was 176% more likely to be arrested for a violent crime than the individual who scored a 9. The individual who scored at the top of the range (45) was 55% more likely to be arrested for a violent crime than an individual whose score was near the mean (34). The individual who scored at the bottom of the range (9) was 122% less likely to be arrested for a violent crime than an individual who scored near the mean. However, because the odds ratio was only marginally significant, these statements must be interpreted with caution.
**Hypothesis 1.2.**

Hypothesis 1.2: Dynamic factors can be used to predict arrests for nonviolent criminal behavior.

The $R^2$ for the full maximum likelihood path model was significant ($R^2 = .152, p < .005$). The maximum likelihood path analysis indicated that the predictor variable of General Family Functioning ($T$-score) was significant for arrest for nonviolent crime, ($p < .001$). The logistic regression odds ratio was .995 (Table 4.2). For every unit *decrease* in score on the General Family Functioning Scale, a juvenile was 4.5% less likely to be arrested for a nonviolent crime.

General Family Functioning scores ranged from 36-98. The individual who scored a 98 on this scale was 279% more likely to be arrested for a nonviolent crime than the individual who scored 36. The mean for general family functioning was 62. The individual who scored at the top of the range (98) was 162% more likely to be arrested for a nonviolent crime than an individual whose score was near the mean. The individual who scored a 36 was 117% less likely to be arrested for a nonviolent crime than one who scored near the mean.

**Additional findings.** Significant odds ratios were also found for Ethnicity (African Americans: $p < .005$ and Latino/a: $p < .019$) as predictors of being arrested for violent crime. Odds ratio for African American was 3.244 and 2.490 for Latino/as. That is, African Americans were 224% more likely to be arrested for a violent crime, and Latino/as were 150% more likely to be arrested for a violent crime.

A significant odds ratio was found for Gender ($p < .003$) with arrest for nonviolent crime. The odds ratio for Gender was 3.618. Males were over 2.5 times more likely to be arrested for a nonviolent crime than females.

Hypothesis 2: Data on dynamic factors (e.g., family relationship) collected in adolescence will predict arrests for the most serious criminal behavior (Felony 1 or 2).
Hypothesis 2 was partially supported by the analysis (Tables 4.3 and 4.4). Hypothesis 2.1 was not supported with any significant predictor variable. Hypothesis 2.2 was supported with two significant dynamic factors.

Hypothesis 2.1.

Hypothesis 2.1: Dynamic factors will predict arrests for the most serious level violent criminal behavior (Felony 1 or 2).

The $R^2$ for the full maximum likelihood path model was significant ($R^2 = .123, p < .03$). The maximum likelihood path analysis did not yield any significant predictor variable of being arrested for the most severe violent crimes (Felony 1 and 2). However, there was a significant odds ratio for gender, with males being at 4 times (4.083) greater risk of being arrested for a Felony 1 or 2 offense ($p < .009$).

Hypothesis 2.2.

Hypothesis 2.2: Dynamic factors will predict arrests for the most serious level nonviolent criminal behavior (Felony 1 or 2).

**Odds ratios.** The $R^2$ for the full maximum likelihood path model was significant ($R^2 = .330, p < .001$). The maximum likelihood path analysis yielded two significant logistic regression odds ratios (both $T$-scores): Internalizing ($p < .009$) and General Family Functioning ($p < .049$). The logistic regression odds ratio for Internalizing was .958. Therefore, each unit decrease in score on the Internalizing scale (Youth Self Report) decreased the juvenile’s likelihood of being arrested for a Felony 1 or Felony 2 nonviolent crime by 4.2%. The odds ratio for General Family Functioning was .977. For every unit decrease in score, a juvenile was 2.3% less likely to be arrested for a Felony 1 or Felony 2 nonviolent crime.
**Internalizing.** Applying the odds ratios to the range of Internalizing scores, the likelihood of being arrested for a Felony 1 or Felony 2 nonviolent crime for each significant predictor variable was examined. Internalizing scores ranged from 26-92 with an odds ratio of .958. With all other things being equal, the individual who scored a 92 on this scale was 277% more likely to be arrested for a Felony 1 or 2 nonviolent crime than the individual who scored 26. The mean for Internalizing is 55. Thus the individual who scored at the top of the range (92) was 156% more likely to be arrested for a Felony 1 or 2 nonviolent crime than an individual whose score is near the mean. The individual who scored a 26 was 121% less likely.

**General Family Functioning.** Within this study, General Family Functioning scores ranged from 36-98, with an odds ratio of .977. With all other things being equal, the individual who scored a 98 on this scale was 143% more likely to be arrested for a Felony 1 or 2 nonviolent crimes than the individual who scored 36. The mean for General Family Functioning was 62. The individual who scored at the top of the range (98) was 83% more likely to be arrested for a nonviolent crime than an individual who had a mean score. The individual who scored a 36 was 60% less likely.

**Additional findings.** Significance was found for Gender for arrest for both violent Felony 1 and 2 ($p < .009$) and nonviolent Felony 1 and 2 offenses ($p < .001$). The odds ratio for arrest for violent Felony 1 and 2 offenses was 4.083. Males were over 3 times more likely to be arrested for a violent Felony 1 or 2 crimes than females. The odds ratio for arrest for nonviolent Felony 1 and 2 offenses was 20.777. Males were over 19 times more likely to be arrested for a nonviolent Felony 1 or 2 crimes than females.

Hypothesis 3: Data on dynamic factors (e.g., family relationship) collected in adolescence will predict the nature of the first arrest after age 17.
Hypothesis 3 was partially supported by the analysis (Tables 4.5 and 4.6). Hypothesis 3.1 was not supported with any significant predictor variable; marginal significance was found in two dynamic factors.

Hypothesis 3.2 was supported with one significant variable and one marginally significant variable.

**Hypothesis 3.1.**

Hypothesis 3.1: Dynamic factors will predict the likelihood that the first arrest after age 17 is for a violent crime.

**Odds ratios.** The $R^2$ for the full maximum likelihood path model was significant ($R^2 = .215, p < .05$). The maximum likelihood path analysis yielded two marginally significant logistic regression odds ratios: Internalizing ($p < .069$) and Parent Communication ($p < .094$). The logistic regression odds ratio for Internalizing was 1.055. Therefore, each unit increase in score on Internalizing (Youth Self Report) increased juvenile’s likelihood of being arrested for a violent crime after age 17 by 5.5%. The odds ratio for Parent Communication was 1.102. Therefore, each unit increase in score on Parent Communication (IPPA) increased a juvenile’s likelihood to be arrested for a violent crime after age 17 by 10.2%. These statements must be interpreted with caution because the odds ratios were only marginally significant.

**Internalizing.** Applying the odds ratios to the range of scores found in this study for each marginally significant predictor variable, the likelihood of arrest for a violent crime after age 17, was examined. Within this study, Internalizing scores ranged from 26-92 with an odds ratio of 1.055. With other things being equal, the individual who scored a 92 on this scale is 363% more likely to be arrested for a violent crime after the age of 17 than the individual who scored 26. The mean for Internalizing was 55. The individual who scored at the top of the range (92) was 205%
more likely to be arrested for a violent crime after the age of 17, than an individual whose score is near the mean; the individual who scored a 26 was 158% less likely to be arrested for a violent crime after the age of 17.

**Parent Communication.** Within this study, Parent Communication scores ranged from 8-40 with an odds ratio of 1.102. With all other things being equal, the individual who scored a 40 on this scale was 326% more likely to be arrested for a violent crime after the age of 17, than the individual who scored 8. The mean for Parent Communication was 29. The individual who scored at the top of the range (40) was 115% more likely to be arrested for a violent crime after the age of 17, than an individual who had a mean score; the individual who scored an 8 was 211% less likely.

**Hypothesis 3.2.**

Hypothesis 3.2: Dynamic factors will predict the likelihood that the first arrest after age 17 is for a nonviolent crime.

**Odds ratios.** The $R^2$ for the full maximum likelihood path model was significant ($R^2 = .180, p < .001$). Through the maximum likelihood path analysis, one predictor variable was found to be significant: General Family Functioning ($p < .001$). Peer Communication was found to be marginally significant ($p < .082$). The logistic regression odds ratio for General Family Functioning was .953. For every unit decrease in score on the General Family Functioning, an individual was 4.7% less likely to be arrested for a nonviolent crime after age 17. The logistic regression odds ratio for Peer Communication was 1.055. For every unit increase in score on Peer Communication, an individual was 5.5% more likely to be arrested for a nonviolent crime.
**General Family Functioning.** Applying the odds ratios to the range of scores found in this study, likelihood of arrest for a nonviolent crime after age 17 was examined. General Family Functioning scores ranged from 36-98, with an odds ratio of .953. With other things being equal, the individual who scored a 98 on this scale was 291% more likely to be arrested for a nonviolent crime after the age of 17, than the individual who scored 36. The mean for General Family Functioning was 62. The individual who scored at the top of the range (98) was 171% more likely to be arrested for a nonviolent crime after the age of 17, than an individual who had a mean score; the individual who scored a 36 was 120% less likely to be arrested for a nonviolent crime.

**Peer Communication.** Within this study, Peer Communication scores ranged from 8-40 with an odds ratio of 1.055. With all other things being equal, the individual who scored a 40 on this scale was 176% more likely to be arrested for a nonviolent crime after the age of 17 than the individual who scored 8. The mean for Peer Communication was 27. The individual who scored at the top of the range (40) was 72% more likely to be arrested for a nonviolent crime after the age of 17, than an individual who had a mean score; the individual who scored an 8 is 104% less likely. However, because the odds ratio was only marginally significant, these statements must be interpreted with caution.

**Additional findings.** A marginally significant odds ratio was found for the first arrest after the age of 17 being a violent crime in African Americans ($p < .059$). The odds ratio for African American juveniles was 2.780. African Americans were 178% more likely to have their first arrest for a violent offense after age 17. This statement must be interpreted with caution as this finding yielded only a marginally significant result.
Significance was found for Gender \((p < .001)\) with nonviolent crime as first offense after age 17. Odds ratio for Gender was 1.991. Males were 99% more likely to have an arrest for a nonviolent first offense than females.
Table 4.1
Model Fit for Hypothesis 1.1 – Arrests for Violent Offenses

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>S.E.</th>
<th>Est./S.E.</th>
<th>Two-Tailed</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>p</em>-value</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internalizing</td>
<td>0.048</td>
<td>0.018</td>
<td>0.561</td>
<td>0.575</td>
<td>1.010</td>
</tr>
<tr>
<td>Child Depression Inventory</td>
<td>-0.027</td>
<td>0.019</td>
<td>-0.711</td>
<td>0.477</td>
<td>0.986</td>
</tr>
<tr>
<td>General Symptom Inventory</td>
<td>-0.039</td>
<td>0.022</td>
<td>-0.783</td>
<td>0.434</td>
<td>0.983</td>
</tr>
<tr>
<td>General Family Functioning</td>
<td>-0.009</td>
<td>0.011</td>
<td>-0.815</td>
<td>0.415</td>
<td>0.991</td>
</tr>
<tr>
<td><strong>Parental Verbal Aggression</strong></td>
<td><strong>0.047</strong></td>
<td><strong>0.018</strong></td>
<td><strong>2.651</strong></td>
<td><strong>0.008</strong></td>
<td><strong>1.048</strong>*</td>
</tr>
<tr>
<td>Gender</td>
<td>0.257</td>
<td>0.386</td>
<td>0.668</td>
<td>0.504</td>
<td>1.294</td>
</tr>
<tr>
<td>Parent Trust</td>
<td>-0.017</td>
<td>0.031</td>
<td>-0.565</td>
<td>0.572</td>
<td>0.983</td>
</tr>
<tr>
<td>Parent Communication</td>
<td>0.018</td>
<td>0.034</td>
<td>0.517</td>
<td>0.605</td>
<td>1.018</td>
</tr>
<tr>
<td>Parent Alienation</td>
<td>-0.010</td>
<td>0.023</td>
<td>-0.444</td>
<td>0.657</td>
<td>0.990</td>
</tr>
<tr>
<td>Peer Trust</td>
<td>0.048</td>
<td>0.027</td>
<td>1.819</td>
<td>0.069</td>
<td>1.049</td>
</tr>
<tr>
<td>Peer Communication</td>
<td>-0.046</td>
<td>0.030</td>
<td>-1.507</td>
<td>0.132</td>
<td>0.955</td>
</tr>
<tr>
<td><strong>Peer Alienation</strong></td>
<td><strong>0.071</strong></td>
<td><strong>0.035</strong></td>
<td><strong>2.003</strong></td>
<td><strong>0.045</strong></td>
<td><strong>1.074</strong>*</td>
</tr>
<tr>
<td>African American</td>
<td>1.186</td>
<td>0.417</td>
<td>2.846</td>
<td>0.004</td>
<td>3.274</td>
</tr>
<tr>
<td>Latino/a American</td>
<td>0.913</td>
<td>0.391</td>
<td>2.338</td>
<td>0.019</td>
<td>2.493</td>
</tr>
</tbody>
</table>

* Significant Odds Ratio
### Table 4.2

**Model Fit for Hypothesis 1.2 – Arrests for Nonviolent Offenses**

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>S.E.</th>
<th>Est./S.E.</th>
<th>Two-Tailed p-value</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internalizing</strong></td>
<td>-0.005</td>
<td>0.023</td>
<td>-0.220</td>
<td>0.826</td>
<td>0.995</td>
</tr>
<tr>
<td><strong>Child Depression Inventory</strong></td>
<td>0.015</td>
<td>0.022</td>
<td>0.652</td>
<td>0.515</td>
<td>1.015</td>
</tr>
<tr>
<td><strong>General Symptom Inventory</strong></td>
<td>-0.014</td>
<td>0.026</td>
<td>-0.549</td>
<td>0.583</td>
<td>0.986</td>
</tr>
<tr>
<td><strong>General Family Functioning</strong></td>
<td><strong>-0.046</strong></td>
<td><strong>0.013</strong></td>
<td><strong>-3.636</strong></td>
<td><strong>0.000</strong></td>
<td><strong>0.955</strong>*</td>
</tr>
<tr>
<td><strong>Parental Verbal Aggression</strong></td>
<td>0.014</td>
<td>0.021</td>
<td>0.695</td>
<td>0.487</td>
<td>1.014</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td><strong>1.289</strong></td>
<td><strong>0.430</strong></td>
<td><strong>2.999</strong></td>
<td><strong>0.003</strong></td>
<td><strong>3.629</strong>*</td>
</tr>
<tr>
<td><strong>Parent Trust</strong></td>
<td>-0.043</td>
<td>0.037</td>
<td>-1.179</td>
<td>0.239</td>
<td>0.958</td>
</tr>
<tr>
<td><strong>Parent Communication</strong></td>
<td>0.036</td>
<td>0.040</td>
<td>0.891</td>
<td>0.373</td>
<td>1.037</td>
</tr>
<tr>
<td><strong>Parent Alienation</strong></td>
<td>0.002</td>
<td>0.029</td>
<td>0.062</td>
<td>0.951</td>
<td>1.002</td>
</tr>
<tr>
<td><strong>Peer Trust</strong></td>
<td>0.027</td>
<td>0.031</td>
<td>0.884</td>
<td>0.377</td>
<td>1.028</td>
</tr>
<tr>
<td><strong>Peer Communication</strong></td>
<td>0.020</td>
<td>0.036</td>
<td>0.561</td>
<td>0.575</td>
<td>1.020</td>
</tr>
<tr>
<td><strong>Peer Alienation</strong></td>
<td>0.001</td>
<td>0.044</td>
<td>0.031</td>
<td>0.975</td>
<td>1.001</td>
</tr>
<tr>
<td><strong>African American</strong></td>
<td>0.096</td>
<td>0.504</td>
<td>0.191</td>
<td>0.848</td>
<td>1.101</td>
</tr>
<tr>
<td><strong>Latino/a American</strong></td>
<td>0.162</td>
<td>0.478</td>
<td>0.339</td>
<td>0.735</td>
<td>1.176</td>
</tr>
</tbody>
</table>

* Significant Odds Ratio
### Table 4.3
**Model Fit for Hypothesis 2.1 - Arrests for Felony 1 or Felony 2 Violent Offenses**

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>S.E.</th>
<th>Est./S.E.</th>
<th>Two-Tailed</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Significant Odds Ratio</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internalizing</td>
<td>0.015</td>
<td>0.019</td>
<td>0.788</td>
<td>0.431</td>
<td>1.015</td>
</tr>
<tr>
<td>Child Depression Inventory</td>
<td>-0.004</td>
<td>0.022</td>
<td>-0.175</td>
<td>0.861</td>
<td>0.996</td>
</tr>
<tr>
<td>General Symptom Inventory</td>
<td>-0.013</td>
<td>0.024</td>
<td>-0.552</td>
<td>0.581</td>
<td>0.987</td>
</tr>
<tr>
<td>General Family Functioning</td>
<td>-0.006</td>
<td>0.011</td>
<td>-0.496</td>
<td>0.620</td>
<td>0.994</td>
</tr>
<tr>
<td>Parental Verbal Aggression</td>
<td>0.008</td>
<td>0.017</td>
<td>0.487</td>
<td>0.626</td>
<td>1.008</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td><strong>1.407</strong></td>
<td><strong>0.541</strong></td>
<td><strong>2.601</strong></td>
<td><strong>0.009</strong></td>
<td><strong>4.083</strong>*</td>
</tr>
<tr>
<td>Parent Trust</td>
<td>-0.049</td>
<td>0.033</td>
<td>-1.475</td>
<td>0.140</td>
<td>0.952</td>
</tr>
<tr>
<td>Parent Communication</td>
<td>0.049</td>
<td>0.038</td>
<td>1.287</td>
<td>0.198</td>
<td>1.050</td>
</tr>
<tr>
<td>Parent Alienation</td>
<td>-0.035</td>
<td>0.025</td>
<td>-1.405</td>
<td>0.160</td>
<td>0.965</td>
</tr>
<tr>
<td>Peer Trust</td>
<td>-0.012</td>
<td>0.028</td>
<td>-0.435</td>
<td>0.663</td>
<td>0.988</td>
</tr>
<tr>
<td>Peer Communication</td>
<td>0.023</td>
<td>0.032</td>
<td>0.704</td>
<td>0.481</td>
<td>1.023</td>
</tr>
<tr>
<td>Peer Alienation</td>
<td>0.039</td>
<td>0.038</td>
<td>1.008</td>
<td>0.314</td>
<td>1.040</td>
</tr>
<tr>
<td>African American</td>
<td>0.672</td>
<td>0.470</td>
<td>1.430</td>
<td>0.153</td>
<td>1.958</td>
</tr>
<tr>
<td>Latino/a American</td>
<td>0.506</td>
<td>0.452</td>
<td>1.120</td>
<td>0.263</td>
<td>1.659</td>
</tr>
</tbody>
</table>

*Significant Odds Ratio*
### Table 4.4
**Model Fit for Hypothesis 2.2 – Arrests for Felony 1 or Felony 2 Nonviolent Offenses**

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>S.E.</th>
<th>Est./S.E.</th>
<th>Two-Tailed p-value</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internalizing</strong></td>
<td>-0.043</td>
<td>0.020</td>
<td>-2.221</td>
<td>0.026</td>
<td>0.958</td>
</tr>
<tr>
<td><strong>Child Depression Inventory</strong></td>
<td>0.026</td>
<td>0.024</td>
<td>1.116</td>
<td>0.265</td>
<td>1.027</td>
</tr>
<tr>
<td><strong>General Symptom Inventory</strong></td>
<td>0.021</td>
<td>0.024</td>
<td>0.865</td>
<td>0.387</td>
<td>1.021</td>
</tr>
<tr>
<td><strong>General Family</strong></td>
<td>-0.024</td>
<td>0.012</td>
<td>-1.972</td>
<td>0.049</td>
<td>0.977*</td>
</tr>
<tr>
<td><strong>Functioning</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parental Verbal Aggression</td>
<td>0.017</td>
<td>0.017</td>
<td>1.015</td>
<td>0.310</td>
<td>1.017</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td>3.034</td>
<td>0.781</td>
<td>3.887</td>
<td>0.000</td>
<td>20.777*</td>
</tr>
<tr>
<td>Parent Trust</td>
<td>-0.016</td>
<td>0.033</td>
<td>-0.486</td>
<td>0.627</td>
<td>0.984</td>
</tr>
<tr>
<td>Parent Communication</td>
<td>0.028</td>
<td>0.037</td>
<td>0.760</td>
<td>0.447</td>
<td>1.028</td>
</tr>
<tr>
<td>Parent Alienation</td>
<td>-0.023</td>
<td>0.025</td>
<td>-0.901</td>
<td>0.367</td>
<td>0.978</td>
</tr>
<tr>
<td>Peer Trust</td>
<td>-0.022</td>
<td>0.029</td>
<td>-0.779</td>
<td>0.436</td>
<td>0.978</td>
</tr>
<tr>
<td>Peer Communication</td>
<td>0.023</td>
<td>0.033</td>
<td>0.694</td>
<td>0.488</td>
<td>1.023</td>
</tr>
<tr>
<td>Peer Alienation</td>
<td>-0.001</td>
<td>0.039</td>
<td>-0.035</td>
<td>0.972</td>
<td>0.999</td>
</tr>
<tr>
<td>African American</td>
<td>0.552</td>
<td>0.434</td>
<td>1.274</td>
<td>0.203</td>
<td>1.738</td>
</tr>
<tr>
<td>Latino/a American</td>
<td>-0.326</td>
<td>0.413</td>
<td>-0.790</td>
<td>0.430</td>
<td>0.722</td>
</tr>
</tbody>
</table>

* *Significant Odds Ratio*
Table 4.5  
*Model Fit for Hypothesis 3.1 – Arrests for Violent Offenses after Age 17.0*

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>S.E.</th>
<th>Est./S.E.</th>
<th>Two-Tailed p-value</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internalizing</td>
<td>0.054</td>
<td>0.030</td>
<td>1.818</td>
<td>0.069</td>
<td>1.055</td>
</tr>
<tr>
<td>Child Depression Inventory</td>
<td>-0.024</td>
<td>0.032</td>
<td>-0.735</td>
<td>0.462</td>
<td>0.977</td>
</tr>
<tr>
<td>General Symptom Inventory</td>
<td>-0.030</td>
<td>0.035</td>
<td>-0.856</td>
<td>0.392</td>
<td>0.970</td>
</tr>
<tr>
<td>General Family Functioning</td>
<td>0.015</td>
<td>0.016</td>
<td>0.978</td>
<td>0.328</td>
<td>1.016</td>
</tr>
<tr>
<td>Parental Verbal Aggression</td>
<td>0.013</td>
<td>0.025</td>
<td>0.514</td>
<td>0.607</td>
<td>1.013</td>
</tr>
<tr>
<td>Gender</td>
<td>1.322</td>
<td>0.834</td>
<td>1.585</td>
<td>0.113</td>
<td>3.751</td>
</tr>
<tr>
<td>Parent Trust</td>
<td>-0.063</td>
<td>0.050</td>
<td>-1.264</td>
<td>0.206</td>
<td>0.939</td>
</tr>
<tr>
<td><strong>Parent Communication</strong></td>
<td><strong>0.097</strong></td>
<td><strong>0.058</strong></td>
<td><strong>1.674</strong></td>
<td><strong>0.094</strong></td>
<td><strong>1.102</strong>*</td>
</tr>
<tr>
<td>Parent Alienation</td>
<td>0.018</td>
<td>0.037</td>
<td>0.483</td>
<td>0.629</td>
<td>1.018</td>
</tr>
<tr>
<td>Peer Trust</td>
<td>-0.003</td>
<td>0.041</td>
<td>-0.075</td>
<td>0.949</td>
<td>0.997</td>
</tr>
<tr>
<td>Peer Communication</td>
<td>0.003</td>
<td>0.047</td>
<td>0.071</td>
<td>0.943</td>
<td>1.003</td>
</tr>
<tr>
<td>Peer Alienation</td>
<td>-0.039</td>
<td>0.058</td>
<td>-0.678</td>
<td>0.498</td>
<td>0.962</td>
</tr>
<tr>
<td><strong>African American</strong></td>
<td><strong>2.045</strong></td>
<td><strong>1.082</strong></td>
<td><strong>1.890</strong></td>
<td><strong>0.059</strong></td>
<td><strong>7.730</strong>*</td>
</tr>
<tr>
<td>Latino/a American</td>
<td>1.532</td>
<td>1.075</td>
<td>1.426</td>
<td>0.154</td>
<td>4.629</td>
</tr>
</tbody>
</table>

* Marginally Significant Odds Ratio
### Table 4.6
Model Fit for Hypothesis 3.2 – Arrests for Nonviolent Offenses after Age 17.0

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>S.E.</th>
<th>Est./S.E.</th>
<th>Two-Tailed</th>
<th>Odds Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>p-value</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internalizing</td>
<td>-0.011</td>
<td>0.018</td>
<td>-0.583</td>
<td>0.560</td>
<td>0.989</td>
</tr>
<tr>
<td>Child Depression Inventory</td>
<td>0.001</td>
<td>0.020</td>
<td>0.028</td>
<td>0.977</td>
<td>1.001</td>
</tr>
<tr>
<td>General Symptom Inventory</td>
<td>0.008</td>
<td>0.022</td>
<td>0.375</td>
<td>0.708</td>
<td>1.008</td>
</tr>
<tr>
<td><strong>General Family Functioning</strong></td>
<td><strong>-0.048</strong></td>
<td><strong>0.012</strong></td>
<td><strong>-4.099</strong></td>
<td><strong>0.000</strong></td>
<td><strong>0.953</strong>*</td>
</tr>
<tr>
<td>Parental Verbal Aggression</td>
<td>0.003</td>
<td>0.016</td>
<td>0.198</td>
<td>0.849</td>
<td>1.003</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td><strong>1.377</strong></td>
<td><strong>0.412</strong></td>
<td><strong>3.338</strong></td>
<td><strong>0.001</strong></td>
<td><strong>3.963</strong>*</td>
</tr>
<tr>
<td>Parent Trust</td>
<td>-0.014</td>
<td>0.031</td>
<td>-0.444</td>
<td>0.657</td>
<td>0.986</td>
</tr>
<tr>
<td>Parent Communication</td>
<td>-0.036</td>
<td>0.035</td>
<td>-1.036</td>
<td>0.300</td>
<td>0.965</td>
</tr>
<tr>
<td>Parent Alienation</td>
<td>-0.019</td>
<td>0.024</td>
<td>-0.802</td>
<td>0.423</td>
<td>0.981</td>
</tr>
<tr>
<td>Peer Trust</td>
<td>-0.023</td>
<td>0.026</td>
<td>-0.885</td>
<td>0.376</td>
<td>0.977</td>
</tr>
<tr>
<td>Peer Communication</td>
<td>0.053</td>
<td>0.031</td>
<td>1.738</td>
<td>0.082</td>
<td>1.055</td>
</tr>
<tr>
<td>Peer Alienation</td>
<td>-0.009</td>
<td>0.036</td>
<td>-0.264</td>
<td>0.791</td>
<td>0.991</td>
</tr>
<tr>
<td>African American</td>
<td>0.255</td>
<td>0.421</td>
<td>0.607</td>
<td>0.544</td>
<td>1.291</td>
</tr>
<tr>
<td>Latino/a American</td>
<td>-0.148</td>
<td>0.397</td>
<td>-0.372</td>
<td>0.710</td>
<td>0.863</td>
</tr>
</tbody>
</table>

* Significant Odds Ratio
CHAPTER V: DISCUSSION

I chose to undertake this study for several reasons. In the first year of my master’s program at Texas Tech University (TTU) I had the opportunity to experience the juvenile justice alternative education program (JJAEP) and to administer some of the assessment packets used in this study. More importantly, however, I had the opportunity work with the adolescents in the program. I never knew that a small brown building with 5 or 6 trailers, surrounded by fence, would impact the trajectory of my clinical and research interests as much as it did on that first day I walked through those gates.

That first day, I entered the building and received my list of names from the principal of the school/program. I was told I could go pull the students from class and take them to a small room in a trailer next to the offices. This room had previously been used for storage of unused classroom desks and other equipment, and was not the therapeutic environment that existed over at the Family Therapy Clinic on campus (where I was training). I went and pulled “Jose” from class, we went and sat down in our little room, and I started explaining to him why I was there. I began by making it clear that I was not the police or a correction officer and that I wanted to see if there was any way I could help him get through this experience as easily as possible. He was a smart young man, Latino, 14 years old, and had no problem with understanding or completing the assessment packet. Once he had completed the assessment packet, he handed the papers back to me, looked at me, and asked me what my name was again. I told him it was Adam. He nodded and replied, “That’s what I thought you said, that will be easy to remember; that was my dad’s name.” His father had been murdered the year before. He had been shot in the back with a shotgun in a drug deal that had gone bad. I sat there listening to this boy tell me about his family, wondering how I could do anything to help him. His mother was in prison, and had been there
most of his life. His oldest brother had just received a sentence of 44 years in the state penitentiary for discharging his weapon while committing armed robbery.

Several months into my weekly visits to JJAEP to work with Jose, we had a session that has forever carved a place into my memory. John was coming down with a cold; he was bundled up, but could not seem to get warm. I asked him how long he had felt this way, and he said it was just because he had been cold while he tried to sleep the past few nights. I asked him why he had been so cold at night. He then told me the story of how his next older brother had been sitting on his bed cleaning his shotgun when it discharged and blew a hole in the wall that went to the outside. This hole was just above Jose’s pillow. He had tried to duct tape some cardboard to cover it, but it was not helping very much. I asked him if he was in the room when that happened. He laughed a little and said “yes,” as if this were no big deal, just another day in his household.

The second adolescent I met with on my first day was “Chris”. He was a 13 year old Latino boy, who was also very smart, but rather soft spoken. I remember I finally got him to open up once he found out that I was a student at TTU. He loved TTU. He had dreams of going there for college. When I asked him what he wanted to do, he said he wanted to “Learn how to build things like bridges and buildings, big things.” He was a very impressive young man, and I remember asking him why he had been sent to JJAEP and removed from his local school. He said he had gotten arrested for selling marijuana in the halls of his middle school. After several probing questions, it turned out that his dad sold marijuana. Chris had gotten some from his father to sell at school in an attempt to help the business. In his mind, he was just doing his part to help his father support the family.
I will never forget Chris and Jose. I just wanted so badly to figure out a way to help them find a better future. The JJAEP program was doing what they could with the resources they had; however, their attempt of rehabilitation was individually focused. These adolescents, sometimes just children (10 years old), were being held individually accountable for their behaviors. The JJAEP did not take into consideration the environment that these juveniles came from. For example, juveniles who came from abusive families would have been more likely to act aggressively in reaction to the verbally aggressive correctional techniques of the officers as a result of the environment in which they grew up. Additionally, this program was focused on the use of fear-based, scare tactics which did not foster a learning nor rehabilitative environment. I do not believe that this was the solution that would help these juveniles find a different and better future. Although I am still searching for what the solution might be, I believe the findings in this study help shed light on issues that need to be addressed in this juvenile system, in therapy, and in academic research.

**Summary of Results**

The results of this study support the hypothesis that self-report measures taken in adolescence can be used as predictors of arrests for violent and nonviolent crime. However, they do not speak to how we might act to prevent or ameliorate such crime.

**Hypothesis 1.1: Violent crime.** Parental Verbal Aggression (PVA) was found to be a significant predictor for arrests for violent criminal behaviors. Verbal aggression referred to the communication from parents to their children. This type of interaction includes verbal attacks, insults, swearing, threats, etc. (Straus, 1979). In the measure used, PVA also included the parent throwing or smashing objects. The higher the score on this subscale, the more likely that the
adolescent was to have been arrested for a violent crime. Each point higher on the scale represented a 5% increase in likelihood with a range of 0%-210% increase in risk. This finding suggests that the negative, aggressive communication from parents increases the risk of a juvenile being arrested for a violent crime, consistent with the literature. Children who experience recurrent verbal aggression from their parents display higher rates of physical aggression and delinquent behaviors (Vissing, Straus, Gelles, & Harrop, 1991).

Peer Alienation was also found to be a significant predictor for being arrested for a violent criminal offense. Juveniles who reported feeling alienated from their peers were at a higher risk. Peer alienation has been defined as a lack of communication with peers, not being accepted by peers, feeling alone, and a lack of connection with peers (Armsden & Greenberg, 1987). Each point higher on this scale represented a 7.5% increase in likelihood to be arrested for a violent crime with a range of 0%-178%. This finding is also supported by the literature. Lack of peer social integration and feeling alienated at school has been shown to predict violent behavior in youth (Laufer & Yossi, 2003).

Ethnicity, but not gender, was found to be a significant control or static variable. Juveniles who were ethnic minorities (African American and Latino/a) were at a higher risk for being arrested for a violent crime with African Americans at a 224% higher risk and Latino/a at 150% higher risk for being arrested for a violent crime.

Peer Trust was also found to be marginally significant as a positive predictor of violent crime. Attention needs to be paid to juveniles who have difficulty trusting their peer group, a funding in consistent with the risk associated with peer alienation. However, further research needs to be conducted as this was marginally significant. Peer Trust is logically the opposite of
Peer Alienation. In the social network of many of these adolescents, it may have been imprudent to place trust in others.

**Hypothesis 1.2: Nonviolent crime.** General Family Functioning (GFF) was found to be a significant predictor for being arrested for a nonviolent criminal offense. The higher the functioning of the family, the lower the risk of the juvenile to be arrested for a nonviolent crime. Conversely, juveniles who scored high on the GFF (low family functioning) were at a higher risk for being arrested for nonviolent crimes. For each unit decrease in score the juvenile was 4.5% less likely to be arrested for a non-violent crime with a range from 0%-24%. Youth who have lower scores on this scale report that they are accepted by their family, that they can openly express emotion, and that the family works as a cohesive unit and can make decisions together. The youth who scored low on the GFF were at a lower risk of being arrested for a nonviolent crime.

The gender of the juvenile was also a significant predictor of being arrested for a nonviolent crime with males at higher risk than females. Unlike the prediction of being arrested for violent crime, the juvenile’s ethnicity did not predict being arrested for nonviolent crimes. Accounting for other predictors, males were at a greater risk, specifically 2.5 times more likely to be arrested for a nonviolent crime than females.

**Hypothesis 2.1: Violent crimes (felony 1 or 2).** Gender was found to be significant for predicting arrests for Felony 1 and 2 violent crimes in contrast to the findings of Hypothesis 1.1. When examining high level violent crime, only gender emerged as a predictor, with males being 3 times more likely to be arrested for a violent Felony 1 or 2 crime than females. The dynamic factors used in this study did not yield any significant result for this level of violent crime.
However, there are other violent crimes (e.g., Misdemeanors A) not accounted for within the categories of Felony 1 and 2 that were not addressed within this hypothesis. Further research on these serious crimes is needed to narrow the scope on predicting arrests.

**Hypothesis 2.2: Nonviolent crimes (felony 1 or 2).** Two dynamic factors, Internalizing and General Family Functioning were found to be significant in the prediction of arrests for Felony 1 and 2 nonviolent crimes. Internalizing behavior is defined as acting negatively toward self through harmful behaviors, such as depression, substance abuse, cutting, etc. Juveniles who reported having high levels of these internalizing behaviors were at greater risk of being arrested for a serious nonviolent offense (Felony 1 or 2). Each unit decrease on this scale yielded a 4.2% decrease in likelihood (range = 0-272%). Violent Felony 1 and 2 crimes (e.g., murder, armed robbery, and false imprisonment) can be categorized as more external than nonviolent Felony 1 and 2 offenses (e.g., drug offenses and fraud). Therefore, it is reasonable that juveniles who have high levels of internalization would have higher incidents of arrest for serious nonviolent criminal behaviors.

General Family Functioning was not only a significant predictor for arrests for nonviolent criminal behavior in general, but it was also a significant predictor for the likelihood of arrest for a serious nonviolent crime. Families with more dysfunction were not only at risk for their offspring to be arrested for nonviolent offenses at some point in their adolescence or young adulthood, but were also at higher risk to be arrested for serious Felony 1 or 2 nonviolent offenses. The predictor variable, General Family Functioning, was important in examining nonviolent criminal behavior. For every unit lower in GFF score, the juvenile was 2.3% less likely to be arrested for a nonviolent crime with a range from 0% to 143%. This is supported by the literature showing that poor family functioning creates higher risk for juveniles in the
development of delinquent behaviors (Moffitt et al., 2001; Ryan & Testa, 2005). Improvements in family functioning have been shown to decrease delinquent behavior in adolescents (Huey, Henggeler, Brondino, & Pickrel, 2000).

Gender was, again, found to be a significant predictor of arrests for nonviolent crime, specifically Felony 1 and 2. Males were at a higher risk than females by a wide margin, i.e., 19 times more likely to be arrested for a nonviolent Felony 1 or 2 offense. Gender was a predictor not only for being arrested for nonviolent criminal offenses, but specifically being arrested for serious Felony 1 and 2 arrests.

**Hypothesis 3.1: Violent crimes age 17 and above.** Marginal significance was found for the prediction of a first arrest after age 17 being a violent offense. The dynamic factors of Internalizing and Parent Communication along with the control variable of African American ethnicity were found to have marginal predictive strength.

One possible explanation for this marginal finding with Internalizing could be that this study is gathering data over multiple periods of time. The results showed that across both adolescence and young adulthood, Internalizing was a significant predictor of arrests for serious nonviolent crime. The marginal effect, however, suggest that the impact of Internalizing behaviors weakens in young adulthood.

Parent Communication was also found to have marginal significance. One possible explanation for this can be found within the literature. The National Longitudinal Survey of Youth (NLSY, 2002) reports that juveniles who are exposed to criminal behavior within the home are three times more likely, personally, to engage in criminal behaviors, including violent offenses such as serious assault. Exposure to communication around criminal activity predicted
later arrests after the age of 17 for violent crimes in the NLSY study, and many of these adolescents had parents, siblings, and/or extended family members who were involved in criminal behaviors. Caution must be taken when making these assumptions as this result is only marginally significant.

Ethnicity, specifically for African Americans, also yielded a marginally significant odds ratio. African Americans were 178% more likely to be arrested for a violent crime as their first arrest after the age of 17. One reason for this finding could be the percentage of young African American adults involved in gang activity. In 1998, 60% of African American gang members were between the age of 18-24. Additionally, African Americans made up 34% of all gang members in the United States (Office of Juvenile Justice and Delinquency Prevention, 2000). Another possible explanation could be the high rate of perceived discrimination among African Americans leading to low self-esteem (Green, Way, & Pahl, 2006). Low self-esteem has been linked to the presence of externalizing problems and aggression across age and ethnicity (Donnellan, Trzesniewski, Robins, Moffitt, & Caspi, 2005). Caution must again be taken as this result was only marginally significant.

Further research needs to be conducted to increase understanding of the prediction qualities of these variables. The dataset is limited by the age range of 16-28 at the time of the 2010 record check. The participants at the point of record check had a median age of 24 with a maximum age of 28. Therefore, any arrests after the record check were not included in this data set. A current record check is needed in future research. Due to this limitation, the understanding of arrests for violent crime after the age of 17 was not clear.
Hypothesis 3.2: Nonviolent crimes age 17 and above. For the prediction of nonviolent arrests after the age of 17, one predictor variable was found to be significant: General Family Functioning. General Family Functioning was significant in the prediction of arrests of nonviolent offenses, including, all arrests (Hypothesis 1.2), Felony 1 and 2 arrests (Hypothesis 2.2) and first arrest after the age of 17 (Hypothesis 3.2). The poorer functioning of the family was a consistent predictor for nonviolent arrests in adolescence and young adulthood.

Peer Communication was found to have marginal significance in the prediction of nonviolent arrests after the age of 17. One explanation for this could be that the individual participant was choosing to associate with other delinquent peers. This would support the literature that juveniles who choose peer groups that participate in delinquent behaviors are at higher risk for delinquency (DeGarmo & Forgatch, 2005). A clear example of this can be seen in substance use among adolescents. An adolescent who associates with a group of peers that are abusing substances would be at a high risk to participate not only in the delinquent behavior of using substances, but also in the delinquent acts that often accompany substance abuse. These behaviors are classified as drug-seeking behaviors. Drug-seeking behaviors include theft, manufacturing and distribution of substances, etc. All of these are nonviolent, criminal offenses. Peer groups who are participating in these types of delinquent behaviors create a high risk environment for adolescents who choose to associate with them. These high risk environments foster communication around delinquent behavior and could be a reason for the marginally significant finding.

Male gender as the control variable remained a significant predictor for first arrest after the age of 17 for a nonviolent offense, as it was for serious nonviolent offenses (Felony 1 and 2, Hypothesis 2.2) and any nonviolent offenses (Hypothesis 1.2).
Major Findings

This study yielded two major findings specific to the prediction of arrests for violent and nonviolent criminal offenses.

**Predicting arrests for violent crimes.** There were three significant dynamic factors based on data collected from adolescents for arrests for violent crimes: PVA, peer alienation, and ethnicity.

Verbal aggression, within this study, represents Parental Verbal Aggression towards adolescents. PVA has been shown in the literature to have physical as well as emotional consequences to children (Choi, Jeong, Rohan, Polcari, & Teicher, 2009; Tomoda et al., 2011). Severe psychiatric consequences, such as mood disorders, anxiety disorders, and PTSD-related symptoms of trauma, are associated with exposure to verbal aggression from a parent (Tomoda et al.). The effects of PVA carry into early adulthood with elevated symptoms of depression, anger and hostility, anxiety, and dissociation (Tiecher, Samson, Polcari, & McGreenery, 2006). Effect size for PVA was equivalent to witnessing domestic violence and non-familial childhood sexual abuse and exceeded the effect size for physical abuse (Tiecher et al.). Additionally, physical effects can be seen from parental verbal abuse (PVA). Exposure to PVA in childhood leads to alterations in the integrity of neural pathways within the brain (Choi et al.). Participants who experienced PVA differed on the Wechsler Adult Intelligence Scale – III (WAIS – III) in the inability to deal with abstract social conventions, expression, and rules. Also, participants in the Choi et al. study were found to have difficulty with abstract verbal reasoning.

Considering the literature on PVA and the multitude of psychological and physical effects on the individual, it is reasonable to conclude that experiencing high levels of verbal
aggression from a parent could lead to participation and arrest for violent criminal behaviors. Adolescents with mental disorders are at a greater risk for being arrested for violent crimes (Huizinga & Jacob-Chien, 1998). The research presenting evidence for changes in the brain leading to difficulty in abstract understanding social conventions, rules and the ability to handle abstract verbal reasoning (Choi et al., 2009) is of particular interest for the current sample. Juveniles who report high levels of PVA would be predicted to be at risk for delinquent behaviors such as violent criminal offenses.

Peer Alienation was also found to be a predictor of arrests for violent crime. Adolescents who are alienated from their peers do not have a support network and are isolated from other youth. Isolated youth have been shown to be at a greater risk for delinquency. Wampler and Downs (2009) examined parent and peer attachment with a subsample of the current sample of juveniles. Only their self-report of recent behaviors were considered, using portions of the NLSY instrument. One cluster of participants (Isolated Adolescents) reported low levels of attachment to parents and high levels of alienation from parents and peers. This Isolated group was found to have the highest risk for delinquent behavior and reported more violent behavior than the other groups within the sample (Wampler & Downs). These youth also reported higher levels of depression and other psychological problems. As has been shown, adolescents with more psychological difficulties are at a greater risk for violent behavior (Huizinga & Jacob-Chien, 1998). Based on the findings of the current study and previous research, it can be concluded that adolescents who report high levels of Peer Alienation are at a greater risk for arrests for violent criminal behaviors.

Ethnicity was the third variable that was found to be a predictor of arrests for violent crimes. African American and Latinos/as were found to be more likely to be arrested for a
violent crime. The current study examined prediction of arrests. Arrest rates are much higher for African Americans and Latinos/as than for non-Hispanic whites and Asians (Spohn, 2000). The significance of this control variable reflects this racial/ethnic disparity. Minority children have higher rates of exposure to family violence (Hampton & Gelles, 1991) and serious violent crime (Perkins, 1997). In one study, youth who reported committing at least one violent crime had a significantly higher likelihood of being exposed to violence than those who had not offended. Additionally, violent offenders were three times more likely to have witnessed a shooting within the past year (Selner-O’Hagan, Kindlonw, Buka, Raudenbush, & Earls, 1998). Evidence shows that violent offending youth have been exposed to more violence and that minority youth have higher rates of exposure to violence. Also, ethnic minorities who witness violence are at an increased risk for PTSD, depression, aggression, distress and externalizing behavior disturbances (Selner-O’Hagan et al.).

In addition to having exposure to violence, poverty among ethnic minority youth is also a factor that needs to be addressed. Among children under the age of 18, 16,401,000 are living in poverty. Of those 38.2% (4,817,000) are African American and 35% (6,110,000) are Hispanic (University of Michigan: The National Poverty Center, 2010). There is a higher proportion of African American and Hispanic youth living in poverty than any other ethnic minority within the United States.

Previous research shows that there is a relationship between poverty and criminal behavior (Hagan & Peterson, 1995; Jencks, 1992, Krivo & Peterson, 1996; Sampson & Wilson, 1995). As research has progressed, detail within this relationship has emerged. Duncan, Yeung, Brooks-Gunn, and Smith (1998) completed a review of research and reported that the timing (persistent vs. short term) of poverty is important when examining the relationship between
delinquency and poverty. The level of exposure to poverty (length of time in poverty and percentage of a youth’s life spent in poverty) was important with longer periods of time spent in poverty producing higher frequencies of delinquent behavior in youth (Jarjoura, Triplett & Brinker, 2002). Research suggests multiple reasons as to why criminal behavior is high among populations who have experienced persistent poverty (Jarjoura et al.). First, crime is seen as the only opportunity to achieve higher socioeconomic status; second, crime is used as a means of surviving and/or maintaining current socioeconomic status. In addition to these research-based reasons for committing crime, the researcher has also experienced, first hand, additional motives with the current sample. Violent crime was committed not only for survival, but as a way of coping with difficult emotions. The adolescents and young adults within the current sample experienced feelings of inferiority and oppression due to their levels of poverty. To address these emotions, physical violence or criminal activity such as theft were often utilized to gain status and validation among their peers and family members.

Research has not consistently examined the many dynamics of poverty in relationship to delinquent behavior. These dynamics include not only length of time in poverty, but ethnicity, location, family structure, family interactions, peer influence and cognitive stimulation and ability (Jarjoura, et al., 2002). Within the current sample, there are a multitude of examples of this complexity. For instance, one adolescent had a family that was supportive of him being responsible. The family struggled in poverty, but worked in a body shop painting cars. The adolescent’s father focused on pressuring the child to go to school and then work in the body shop to help in avoiding gang activity and delinquency. However, within the town in which this adolescent lived (city in West Texas), gang activity was prevalent, and all of his peers were members of gangs. This participant would go to school, come home, work long hours in the body
shop and witness his family struggling financially. At the same time, he would see his peers in gangs wearing the newest Air Jordan sneakers and having cash in their pockets. As a young adolescent, it is extremely difficult to turn away from the simplistic logical reasoning associated with “joining a gang will get me new things that working long hours in the body shop will not.” This is a perfect example of how poverty can link to delinquent behavior with the complexity of location, peer influence, and the cognitive ability of a 15 year old.

Duncan (1984) found that longer-term poor are more likely to come from African American and female-headed households and that persistence occurred more in the South and rural areas of the United States. These findings relate directly to the current study. The youth examined were from a Southwest city with the majority Latino/a and African American ethnicity. Those in poverty are not a homogeneous population and the complex nature of poverty needs to be taken into consideration when understanding how this relates to delinquent behavior. The youth in this study came from homes in poor communities where drug use and criminal behavior were common. Most were born into poor homes, attended minority-majority schools, and had lived all their lives in a city/county where discrimination against Latinos and African Americans was a norm, both historically and currently.

Evidence supports the current finding that ethnic minority youth have a greater risk of being arrested for violent offenses. However, based on previous research and the multitude of dynamics associated with the relationships between ethnicity and crime, poverty and crime, and ethnicity and poverty, it is clear that there is not a linear relationship between predicting arrests for violent crimes and ethnic minority status. The relationship is complex.
The prediction of arrests for violent crimes was significant for three dynamic factors; however, there is a cumulative risk. The cumulative risk is that adolescents who are African American or Latino/a, victims of PVA, and experience higher levels of Peer Alienation are at the highest risk for being arrested for a violent offense. If an individual meets the criteria for more than one of these risk factors, he/she is at a higher level of risk than an individual who meets criteria for only one of the dynamic factors.

**Predicting arrests for nonviolent crimes.** The level of functioning of a family was a significant predictor of arrests for nonviolent criminal behavior for each hypothesis of this study. Although there were differences in the other predictors for arrests for nonviolent crime across the hypotheses, General Family Functioning was a significant predictor for arrests of nonviolent criminal offenses across all three. Research shows that the higher the level of family functioning, the lower the level of adolescent delinquent behavior (Huey et al., 2000). Having both parents present in the home and having high levels of parent involvement have been shown to lead to lower levels of delinquent behaviors in youth (NLSY, 2002). Some research suggests that single mother-led homes cannot provide the level of supervision and monitoring possible with two parents in the home. However, this issue is much more complex that single parent vs. two-parent home. Research is clear, higher levels of crime in the home (i.e., more dysfunction) have been shown to increase the likelihood of delinquent behavior among juveniles (NLSY) regardless of number of parents in the home. When adolescents are exposed to high levels of dysfunction within their family, there is a normalizing effect that can occur leading to an inability to see their own behaviors as dysfunctional. This supports the finding of the current study that lower levels of family functioning lead to a greater risk for being arrested for nonviolent offenses. However, this issue also brings with it a level of deep complexity. It is not a simple relationship between
parents in the home and/or violence in the home and high levels of delinquency. Factors such as poverty and location (living in violent neighborhoods due to poverty) all play a role in the presence or absence of high levels of delinquent behavior.

The current study shows that not only did General Family Functioning predict arrests for nonviolent crime overall, but also for the seriousness of nonviolent crime and first arrest into early adulthood (after age 17). The literature on family functioning shows evidence that dysfunction is connected to delinquency. The current study shows evidence beyond general delinquency to the most serious nonviolent crimes (Hypothesis 2). This predictor variable showed a pattern where adolescents with low family functioning were more likely to be arrested for nonviolent crime, arrested for Felony 1 and 2 nonviolent crime, and to be arrested for a nonviolent crime after age 17.

Gender consistently remained a significant predictor for arrests of nonviolent crimes across hypotheses. Males were at a higher risk for being arrested for nonviolent crimes, regardless of age or seriousness, than females. This finding is supported by current statistics on arrests. In 2009, males under the age of 18 had almost twice the number of nonviolent arrests than females (males = 326,200; females = 187,800), and males over the age of 18 had over twice the number of nonviolent arrests than females (males = 1,335,100; females = 608,700) (U.S. Census Bureau, 2012). The current study is consistent in finding that males are at a higher risk for being arrested for nonviolent crimes.

Cumulative risk exists also for arrests for nonviolent crime. Males who also have lower levels of family functioning are at greater risk for being arrested for a nonviolent crime than males with better family functioning.
Sample Description and Application

The current study examined a sample of delinquent youth arrested for violent and/or non-violent crimes. It is of paramount importance that this population be described not only by the findings/results from this study, but by the personal experience of the researcher and how it relates to those findings. This sample represents one of the most at risk for delinquent behavior populations.

The current sample was taken from a Southwest region of the United States. The county in which the alternative education program (JJAEP) was located was 32.5% Latino/a and 7.8% African American with 24.1% under the age of 17. Within the public school district, the ethnic minority breakdown was as follows; 56.3% Latino/a, 13.2% African American and 30.6% Anglo (The County Information Program: Texas Association of Counties, 2012). The ethnic minority population within this region is large, and with it comes a great deal of segregation and poverty. Segregation within the schools and specifically the JJAEP was experienced personally by the researcher in the time he lived within this region and in the process of data collection. The city where the current sample was taken has strong neighborhood segregation. Each race lived within a different corner of the city, and borders were clearly defined. Due to the neighborhood segregation, schools were heavily segregated as well from elementary through high school. This segregation trickled down to the JJAEP. Since the majority of the public schools sending students to the JJAEP have a high ethnic minority concentration, the JJAEP has a high ethnic minority population, as can be seen in the current sample. However, this does not explain why so few white-majority schools were sending their students to the JJAEP. The racial segregation led to a high level of cultural isolation and oppression. Additionally, over 20% of the population in the county lives in poverty (20.4%) with 26.3% of the population, under the age of 18, living in
poverty (The County Information Program: Texas Association of Counties). When entering the African American or Latino/a “side of town” the observer is aware that it is distinctly impoverished: run down motels, high level of police presence, older school buildings, pay-day advanced loan companies, unkempt public areas, etc. This creates a clear picture of the oppression that occurs among the ethnic minority and poverty stricken population within the city. The current sample was taken directly from these oppressed areas.

Cultural and poverty isolation are not the only factors that these youths experienced. There were also many racial factors within the alternative education program from which the sample was taken. The researcher witnessed and learned through first-hand accounts from participants and other therapists and researchers, the racism that commonly occurred toward the minority students at the JJAEP. This racism mainly occurred between the probation and correctional officers and the students within the program. This was not only typical “white on black” or “white on brown” racism, but it also occurred between the African American and Latino/a officers and the minority students. Commonly the correctional officers (despite their race/ethnicity) would “pick on” and single out the minority students as compared to the Caucasian students. The probation and correctional officers would call them out more often to be checked on, do more home visits, and use harsher discipline including frequent use of verbal aggression.

The current sample of youth and young adults is a high risk population for continued criminal behavior. The findings from this study found that of the sample of individuals, those most likely to be arrested for criminal behavior experienced parent verbal aggression, peer alienation, and low family functioning. Additionally, this population experiences cultural isolation, poverty, and oppression within the city and county in which they lived, and racism
with continued verbal aggression within the alternative education program to which they are sentenced. This information leads to the conclusion that there is not one simple solution to this complex problem. These youth, first, need to be evaluated and treated as youth. These adolescents and young adults have dreams and aspirations normative to other children within the United States, wanting to own a barbershop or be a fireman. Unfortunately, this population does not typically set their goals for education and achievement high enough, because they lack in an example of high achieving adults around them. Utilizing research, such as the current study, we can highlight the areas of risk and identify multiple resources to help treat this population. Researchers and clinicians cannot categorize this population by ethnicity nor any individual risk factor alone. There needs to be a multipronged approach to treatment. This is an at risk population that needs to be advocated for and not “written off” due to the complexity of their situation.

Take Home Message

The sample from the current study are adolescents and young adults who are at great risk for being arrested for both violent and non-violent crime. Based on the major findings it is clear that this population have a multitude of complex factors working against them in the creation of patterns of delinquency. Ethnicity, family functioning, family structure, exposure to family violence, peer groups, poverty, and location are all factors that these youth live with and struggle against on a daily basis. The two participants, Jose and Chris, are distinct examples of the population of youth that these findings are describing. Adolescents, young in their emotional and cognitive development, balancing pressures from gangs, violence, poverty, family, community, etc. are attempting to function in the best way that they know how. Unfortunately, due to the oppressive and cultural aspects of these factors in combination with the commonality of
delinquent and criminal behavior around them, these youth need external resources in order to combat their current life situation and the risk factors they are juggling.

**Implications**

**Juvenile justice system.** The results of this study lead to several implications. The dynamic factors that were shown to be significant in predicting arrests for violent and nonviolent crimes need to be taken into consideration by the juvenile justice system (JJS). Currently the JJS utilizes static (control) factors such as gender and ethnicity in predicting recidivism and continuation of delinquent behavior (Gendreau, Little, & Goggins, 2006). Based on results of the current study, this system of prediction is limited. First, the control variables of gender and ethnicity cannot be generalized to arrests for both violent and nonviolent crimes. Dynamic factors were different for the two categories. Second, the addition of dynamic factors could strengthen the juvenile justice system’s ability to understand risk levels of adolescents. The juvenile justice system has a rehabilitation-focused mission; therefore, both unchangeable (static) factors of gender and ethnicity and the potentially changeable variables of family functioning, parent child interaction, and peer relationships need to be examined when determining modality of treatment (e.g., family vs. individual interventions).

Static factors are constant and cannot be manipulated. The JJS, however, has the ability not only to assess but to address the significant dynamic factors found in this study. Evidence-based best-practice models of treatment should be applied to this population. The JJS needs to utilize current evidence-based best-practice models, create adaptations to established evidence-based models to fit the needs of their populations, or develop new treatment modalities. Based on the results of the current study, all treatment modalities should have a focus on family and peer
interactions. One example of an evidence-based treatment model that would be an appropriate application is Multisystemic Therapy (Huey et al., 2000). This evidence-based approach has been shown to increase family and peer functioning with juvenile offending populations (Huey et al.).

**Early intervention.** Utilizing evidence-based practices within the JJS is not the only approach needed to make a change within this population. There is a need from both educational programing (elementary, middle, and high schools, after-school programs, and state-funded alternative schools) and community programs to take more responsibility for this population. The earlier the intervention with these children and their families, the less likely they are to be arrested for crimes and the better they will perform in educational environments (Forgatch, Patterson, & Degarmo, 2009; Reynolds, Ou, & Topitzes, 2004)

**School involvement.** Schools have a responsibility to engage the individual child or teenager not only between 8 am and 3 pm, but to be aware of the lives that exist outside the educational facility. Increased communication between teachers, school officials, and the families of their students is necessary to understand better the needs of the students. Children who experience PVA are more likely to be arrested for violent crimes, and families functioning at lower levels have children who are at a higher risk of being arrest for non-violent crimes. Schools counselors, teachers, and administrators need to be aware of these issues. They should use this information and increase their awareness of family roles within their student populations. This knowledge will give the school the ability to utilize the appropriate resources (e.g., counselors, authorities, child protective services) to address issues within the family that may be a factor in a student’s delinquent behavior. Additionally, adolescents who experience high levels of peer alienation are at a higher risk for being arrested for a violent crime. The school
Community needs to heighten their awareness of the social interactions that are occurring in the halls, parking lots, and playgrounds. There is a responsibility to address issues that can create isolation in certain students, such as bullying (face-to-face and cyber bullying), teaching respect, etc.

**Community involvement.** The community also has a responsibility to their child and adolescent populations at all levels of the system. At the ground level, neighbors and families who live in close proximity need to be aware of the relationships between adults, peers, and children. Community members must not become tolerant of dysfunctional and/or abusive behavior and must hold each other accountable to how children are being treated by parents and peers. On an individual level, community members must have the knowledge of the resources within their community that they can contact if problems do occur. On a community level, resources to help families and children need to exist for neighbors to be able to utilize them. Programs such as Big Brothers-Big Sisters, Boys and Girls Club, mentoring programs, and other youth programs, need to be available to help address some of the issues that youth are experiencing. On a macro level, larger cities, states, and communities need to help fund these programs. On all levels of a community system, there is a call to action to help keep the youth within that population safe and out of trouble.

**Clinicians.** The results of this study highlight the importance of looking at multiple variables in order to understand the potential risk that adolescents are faced with at an early stage of their development. It is clear that there are multiple systemic variables to take into consideration when attempting to predict likelihood of arrest. The variables that were prominent across hypotheses were variables focused on the family. General Family Functioning and PVA were the two familial variables that have the most profound clinical implications. This is
especially true for the field of Couple and Family Therapy (CFT). The results illustrate that there were systemic components that were predictive of an individual’s likelihood of arrest. A systemic problem requires a systemic solution. It is vital that CFT clinicians have an understanding of risk associated with these specific variables. In addition to understanding, clinicians must have the clinical skill set to address these risk factors. This skill set includes having the ability to work with entire family, recognizing the relationships between each individual member within a family, teaching parenting skills (with a focus on effective communication, discipline, monitoring, and structure), acknowledging the importance of family of origin and patterns within the family, having cultural sensitivity, having skills to advocate for a family, and having awareness of the multiple stressors and environmental influences that these families may face. Family functioning is a complex issue that requires a level of understanding that takes into account the multiple factors that exist uniquely in each individual family. A clinician cannot make assumptions about a family solely by observing the static factors of ethnicity and socioeconomic status. Because of the complexity of these issues, it is important that the clinicians are not only treating with a systemic lens, but must also have the knowledge of the research that exists to support the most efficacious treatment models (evidence-based best-practices).

It is equally as important that larger systems (JJS and alternative education programs) incorporate the appropriate clinical response in the attempt to rehabilitate. Utilizing CFT therapists who are specifically trained with a systemic focus to work with individuals and families could prove to be invaluable in the process of rehabilitation. Often the youth is still living at home while participating in his/her court ordered sanction. The earlier the intervention on a family, the higher the likelihood of success is. Prevention and intervention efforts should
begin at the time of first referral. However, when they are not participating physically in the program with a therapist, it is vital that attention be paid to family system as a whole. Systemically trained therapists will work not only with the individual, but with the parents as well. This is critically important in regards to the results of this study which highlight the significance of Parental Verbal Aggression.

In order for CFT therapists to get involved in working with families in larger systems, there must be a push not only on the clinical side of this discipline, but the academic side as well. CFT academics must continue to push for evidence-based practice. It is vital that they continue to develop treatment models, secure funding in order to appropriately test their models, and publish the results to show that their models are best practice. CFT programs have the ability to shape the next generation of systemic therapists and systemic academic research. For years, CFT research questions have focused on healthy communication, couple satisfaction, and family dynamics. It now time for this research to extend further. Can the answers to these research questions be taken into lower socio-economic, minority, disenfranchised, and other high risk populations, and begin to make a difference in the lives of the next generation?

**Current Programs**

Today there are only a few evidence based family therapy models in existence. One evidence based model is Multidimensional Family Therapy (MDFT) (Liddle, Dakof, & Diamond, 1992). MDFT is a comprehensive and multisystemic family-based program. This program specializes in treatment for substance-abusing or co-occurring substance use and mental disordered adolescents. It also has shown to be effective with those at high risk for continued substance abuse and other problem behaviors such as conduct disorder and delinquency (Liddle et al.). MDFT works with the individual youth and his/her family in order to help the youth
develop more effective coping skills for better decision making and helps the family improve interpersonal functioning as a protective factor against delinquent behavior, substance abuse, and related problems.

Recently, an adaptation to Multidimensional Family Therapy has been developed in order to address the needs of juveniles in justice facilities; Multidimensional Family Therapy-Detention to Community (MDFT-DTC) (Liddle, Dakof, Henderson & Rowe, 2010). This is the first protocol of its kind to target the multiple outcomes of substance abuse, delinquency, mental health, and high risk sexual behavior. It is also the first intervention to begin these comprehensive services within the detention facility and to continue the family-based services with the same clinicians through aftercare services. This adaptation has a goal to address the gap between juvenile justice facilities and a lack of resources for family functioning in the treatment of delinquency (Liddle et al.). The program was highly effective with participants in the study; however, once the study concluded, both jurisdictions in which MDFT-DTC was implemented, failed to maintain the program. This was due to a lack of staffing and funding (Liddle et al.). The challenge to this program includes addressing the multi-systems issues such as funding and intersystem coordination and collaboration.

There are three additional models of evidence-based family therapy; Multi-systemic Family Therapy (MSFT) (Henggeler, Schoenwald, Borduin, Rowland, & Cunningham, 1998), Parent Management Training Oregon (PMTO) (Forgatch, Patterson, & DeGarmo, 2005), and Functional Family Therapy (FFT) (Alexander & Parsons, 1982). MSFT is an evidence based model of family therapy designed to treat youth with anti-social behaviors and their families. MSFT is an intensive intervention program requiring that interventionists (social workers) caseloads be limited to five or fewer cases. PMTO is one of several Oregon Social Learning
Center interventions that are tailored for clinical problems associated with children’s antisocial behavior. The focus is replacing coercive family processes with effective parenting skills. Evidence has shown that this intervention helps reduce child behavior problems including aggression, delinquency, deviant peer association, internalizing problems, school problems, and growth in substance abuse (Forgatch, Patterson, & DeGarmo). Chamberlain, Price, Reed, and Landsverk (2008) has presented evidence that the PMTO approach is effective when the youth is placed in a specialized foster home and biological parents trained in the model. Functional Family Therapy is an integrated model for working with at-risk juveniles and their families. This model addresses the adolescent and parents, the family system and the social/environmental context in which the family lives. The goals of FFT are to reduce/eliminate the problem behavior, engage and motivate the family to stay in therapy, and generalize the change with a multi-systemic focus (Alexander & Parsons).

The current examples of evidence-based models share a focus on adolescents, families, and delinquent behavior. However, these models need to prioritize collaboration with juvenile justice systems and providers. They must be sustainable without the need for research and grant funding and these models need to be available for use by the juvenile justice system. Currently, many of these programs do not meet these criteria.

Limitations

There are several limitations to this study. The data collected are censored by the ages when adult arrest records were obtained. The record check in 2010 cannot represent all arrests, and there is a possibility that some participants who had not yet offended past age 17 might still be arrested. Future record checks are needed to expand the range of the data. This expansion of the data would increase the ability to further understand the development of violent and
nonviolent behaviors from adolescence into young adulthood (Hypothesis 3). Second, the current study looks only at arrest records. This does not include criminal offenses that did not lead to arrest; therefore, there could be other violent and nonviolent criminal behaviors not accounted for in this data set. Third, the record check data was gathered from the state from which the original data set was taken. This limits the data, and cannot take into account anyone who may have relocated or moved out of state. Finally, all predictor variable information was gathered through self-report. The data are only as accurate as the participants were willing to report. However, interviews with the school’s counselor/head indicated that students were typically frank and forthcoming.

**Future Research**

Future research is needed to verify the findings in the current study, fill the gaps found in Hypothesis 3, and clarify the marginally significant findings. Additional record checks need to be completed to expand the length of follow up. Survival analysis could also be applied to a more current data set to address the limitation of censored data.

The highest numbers of arrests for nonviolent crimes in the United States are for drug-related offenses. In 2011 there were 1,531,251 arrests for drug offenses (Federal Bureau of Investigation, 2011). This is almost three times the number of arrests for all violent crimes together. It is important to understand this issue. Therefore, in addition to more record checks, looking at the arrest for drug offenses in more detail could be helpful in understanding individuals that are participating in non-violent crimes. This could give more in-depth clarification to causality of the criminal behaviors.
REFERENCES


