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Juvenile Offender Risk Factors Associated With Participation in Diversion Programs and Recidivism

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Abstract

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by

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MS, Capella University, 2005

MBA, Southern Adventist University, 2003

BS, Southwestern Adventist University, 1997

Dissertation Submitted in Partial Fulfillment

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Abstract

Although reducing recidivism among juvenile offenders is an important goal of the criminal justice system and diversion programs are known to reduce recidivism, little is known about the risk factors associated with participation in diversion programs or recidivism. The purpose of this quantitative study was to identify the juvenile offender risk factors associated with participation in diversion programs and recidivism. Social learning theory was the theoretical framework. The key research questions focused on how juvenile offenders' demographic characteristics, risk factors, and participation in different types of diversion programs were associated with recidivism. Archival data from a large juvenile justice agency were analyzed using chi-square tests and binary logistic regression to examine the associations between the characteristics of N = 4,656 juvenile offenders (age at the referral date, gender, race, size of family, guardian involvement, and offense type); participation in a 90-day program (DP90) or a 180-day program (P180); and recidivism (referral within 1 year). The overall rate of recidivism was 15.3% per year, but recidivism varied significantly between groups of offenders. The strongest predictor of recidivism was dropping out of the DP180 program. Offenders who did not drop out of the DP90 program were the least likely to recommit a crime. The findings of this study suggest that likely steps for positive social change be implemented through policy changes to expand the role of guardians in diversion participation process. Further research to explain how and why the level of parental/primary guardian involvement and the type of diversion program may moderate the behavior of juvenile offenders in diversion programs is recommended. The use of family-based support strategies may improve the completion rate of diversion programs and may ultimately help to reduce the rate of recidivism for juvenile offenders.

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Dedication

This work is dedicated to the many youth who are misunderstood, seen differently, and wrongfully judged.

Acknowledgments

This work would not have been possible without the guidance of My Savior, My God; my committee, especially my chair, Susan Marcus; the data provided by a large juvenile justice agency (you know who you are); and the support of my friends and loving family. I truly appreciate you all.

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Chapter 1: Introduction to the Study

Recidivism, in the context of the criminal justice system, is generally defined as the re-referral for a new offense of an offender who has already been arrested for at least one previous offense. The outcomes of recidivism may include reconviction and reincarceration (Harris, Lockwood, Mengers, & Stoodely, 2016). The rates of recidivism reported in the literature are inconsistent and vary widely between studies, depending on how recidivism is defined (Cooper, Durose, & Snyder, 2014). For example, Glaze and Kaeble (2014) suggested that most prison inmates, whatever their crime, were likely to be reimprisoned within 1 year after their release, whereas Fraser and Wolf (2015) reported that, in the United States, the state-specific rates of reconviction of offenders for all types of crimes within 3 years in 33 states ranged from 23% in Oregon to 61% in Minnesota.

This study focused on juvenile offenders, who are individuals under the age of 18 years who engage in delinquent, deviant, or criminal behavior in conflict with the law, and who are consequently involved with the criminal justice system (National Institute of Justice, 2014). The *Juvenile Offenders and Victims National Report* published by the Office of Juvenile Justice and Delinquency Prevention (2014) indicated that it is challenging to compare the recidivism rates of juvenile offenders across states, because each state's juvenile justice system defines, measures, and reports recidivism rates in a different way. For example, in the State of Washington, the rates of recidivism of juvenile offenders within an unspecified length of time were reported to be 53% among boys and 46% among girls (Sentencing Guidelines Commission, 2008), whereas Seigle, Walsh, and Weber (2014) suggested that the recidivism rate of juvenile offenders may be as high as 75% in some states.

High rates of recidivism have provided the rationale for extensive recent research to examine the risk factors for recidivism, where a risk factor is defined as any variable that is associated with an increased likelihood that an individual will engage in delinquent, deviant, and/or criminal activity, including an increased probability of reoffending (Calley, 2012; Carpentier & Proulx, 2011; Cuervo & Villanueva, 2015; Howard & Dixon, 2013; Khachatryan, Heide, & Hummel, 2016; Mulder, Vermunt, Brand, Bullens, & Marle, 2011, 2012; Piquero, Jennings, Diamond & Reingle, 2015; Rajlic & Gretton, 2010; Reingle, Jennings, & Maldonado-Molina, 2012; Schwalbe, Gearing, Mackenzie, Brewer, & Abraham, 2012; Rhoades, Leve, Eddy, & Chamberlain, 2015; Tanner-Smith, Wilson, & Lipsey, 2013; Trulson, Caudill, Haerle, & DeLisi, 2014; Van der Put, Van Vugt, Stams, Deković, & Van der Laan; 2013; Vincent, Guy, & Grisso, 2012; Williams & Courtney, 2013; Wong, Bouchard, Gravel, & Bouchard, 2016; Worling, Bookalam, & Litteljohn, 2012). Current research on juvenile offenders is therefore heavily underpinned by a risk-factor paradigm, based on the assumption that the key risk factors (e.g., personal characteristics, traits, environmental conditions, social influences of family, friends, and community) that predict the likelihood of offending must be identified in order to develop preventative measures to counteract the impact of risk factors. For example, a meta-analysis of 134 research studies on juvenile offenders revealed that services that target known risk factors produce significantly greater reductions in recidivism than other strategies (Seigle et al., 2014).

The recidivism of incarcerated juvenile offenders is associated with a considerable financial burden. Incarcerating a juvenile offender in the United States costs an average of $407.58 per person per day and $148,767 per person per year if the

most expensive option is used. Incarcerating juveniles in the United States costs state and local governments as much as $21 billion per year (Justice Policy Institute, 2015). These figures exclude tangible costs to the victims of juvenile offenders (e.g., medical expenses, mental health costs, cash losses, property loss or damages, and lost earnings due to injury) as well as intangible victim costs (e.g., costs associated with pain and suffering resulting from juvenile offenses).

The goal of reducing recidivism rates is socially and economically relevant, not only to lessen the financial burden to state and local governments, but also to reduce the overall level of crime and improve the lives of offenders and their potential victims (Fazel & Wolf, 2015). The most effective way to limit costs is to divert offenders before they are incarcerated. In order to stimulate a reduction in costs, the Juvenile Justice and Delinquency Prevention Reauthorization Act called for the deinstitutionalization of juvenile offenders through alternative approaches to incarceration (Kelly, 2014). Diversion programs are alternative approaches to incarceration that are designed to enable juvenile offenders to avoid criminal charges and a criminal record. The primary objective of diversion programs is to redirect juvenile offenders away from formal adjudication while still holding them accountable for their deviant actions. Diversion programs include interventions that aim to reduce recidivism and lessen costs by preventing rereferral for future offenses (National Institute of Justice, 2014). A recent meta-analysis of the evaluation of 45 diversion programs concluded that diversion programs are more effective than more conventional judicial interventions to reduce recidivism among juvenile offenders (Wilson & Hoge, 2013). However, several authors have called for more in-depth research on the role of demographic and social risk factors

associated with recidivism (Schwalbe et al., 2012; Tanner-Smith et al., 2013; Wong et al., 2016).

More research on the factors associated with the recidivism of juvenile offenders is essential in order to provide empirical evidence to guide future policy, practice, and resource allocation (Seigle et al., 2014). Accordingly, the overall aim of the current study was to add to the body of existing knowledge on recidivism by examining the demographic and social factors that may identify those juvenile offenders who are most at risk of recidivism and examining whether participation in diversion programs reduces recidivism. Specifically, the results of this study may help to identify the risk factors associated with participation in diversion programs and recidivism. Identifying which risk factors are associated with particular groups of offenders at specific stages of their development, and determining which risk factors are associated with recidivism, may help diversion programs to target their efforts in a more efficient and cost-effective manner (Schwalbe et al., 2012; Shader, 2002). The findings of the current study may therefore support better decisions for providing appropriate services to at-risk juvenile offenders.

The subsequent sections of this chapter present background information on the recidivism of juvenile offenders and interventions used in an attempt to reduce recidivism. The problem statement, purpose of the study, and research questions and hypotheses underpinned by a theoretical framework are defined. An introduction to the methodology, the significance of conducting the study, as well as the assumptions, limitations, and limitations of the study are provided.

Background of the Study

High recidivism rates are among the most significant challenges facing the criminal justice system (Cooper et al., 2014; Fazel & Wolf, 2015; Glaze & Kaeble, 2014; Seigle et al., 2014). In the last decade, research on juvenile offenders has focused on three areas that may contribute to a reduction in recidivism: (a) understanding the factors that may increase the risk of juvenile crime (Baglivio, Wolff, Piquero, & Howell, 2016; Calley, 2012; Mulder, Brand, Bullens, & van Marle, 2011; Reingle et al., 2012); (b) exploring the criminal trajectories from juvenile delinquency to adult crime (Loeber, Farrington, & Petechuk, 2013; National Institute of Justice, 2014; Seigle et al., 2014) and (c) improving the design and evaluation of intervention programs (Welsh et al., 2012).

Interventions to reduce or diffuse the risk factors for juvenile offending have emerged from research-based evidence. Such interventions include diversion programs (Jordan, Lehmann, Whitehill, Huynh, Chigbu, Schoech, Cummings, & Bezner, 2013; 2013; Schwalbe et al., 2012; Turpin, 2013; Wilson & Hoge, 2013; Wong et al., 2016); restorative justice programs (Bergseth & Bouffard, 2013); and cognitive behavioral therapy (Caldwell, 2011). Traditionally, the diversion programs that were considered to be the most effective were those that provided intensive services (Dryfoos, 1990). Currently, diversion programs take many forms (e.g., precharge diversion, postcharge diversion; caution/warning; formal programs within or contracted out), but all diversion programs are intended to reduce subsequent involvement in the criminal justice system. Recent research evidence has indicated that recidivism rates are significantly lower for offenders who participate in diversion programs in comparison to offenders involved with the judicial system (Walsh, 2011). Wilson and Hoge (2013) reported a consistent

positive impact across a variety of diversion programs but found considerable variability in program effectiveness that they attributed to programmatic and individual differences between juvenile offenders.

Although the current research focuses on diversion programs, two other approaches are worth a brief mention. The restorative justice (RJ) approach allows offenders the ability to mediate restitution, be accountable, take responsibility for their actions, and avoid future crimes (Basire, 2007; Braithwaite, 2000; Hayes, 2005; Sbicca, 2016). RJ programs present an opportunity for the victim and the offender to recover from the harm of the crime (Basire, 2007). A meta-analysis conducted by Latimer, Dowden, and Muise (2005) demonstrated the effectiveness of RJ in decreasing the recidivism rate and increasing compliance. More recent individual and meta-analytic studies have supported these findings (Baffour, 2006; Bergseth & Bouffard, 2013; Bradshaw, Roseborough, & Umbreit, 2006; Rodriguez, 2007; Sherman & Strang, 2007). Cognitive behavioral treatment is another form of therapeutic intervention that educates juveniles to respond in healthier, less habitual ways to high-risk situations (Dowden, Antonowicz, & Andrews, 2003). Although this form of intervention has not been studied as extensively as diversion programs and RJ, a recent multiyear (average time was 39 months) follow-up study found that graduates of cognitive behavioral treatment had the lowest incidence of recidivism compared to dropouts, nonstarters, and control groups (Jewell, Malone, Rose, Sturgeon, & Owens, 2015).

Several researchers have recently conducted systematic reviews or meta-analyses to examine the risk factors associated with persistent juvenile offending (Assink, Van der Put, Hoeve, De Vries, Stams, & Ooort, 2015; Joliffe, Farrington, Piquero, Loeber, & Hill,

2017; Pusch & Holtfreter, 2018; Wilson & Hoge, 2013). Aggregating the results of multiple studies has revealed that demographic factors such as the geographic referral date, gender, age at the time of the referral date, level of education, family systems, as well as childhood trauma and social influences are among several general factors that may play a critical role in predicting the risk of recidivism. However, more primary research is needed to explore in more explicit detail the impact of demographic and social risk factors on recidivism with respect to specific types of diversion programs in different jurisdictions (Seigle et al., 2014). This research was conducted in an attempt to close the gap in the literature by exploring risk factors of participants in diversion programs and how they relate to recidivism.

Problem Statement

The high rate of recidivism of juvenile offenders is a major problem for both the criminal justice system and society (Fazel & Wolf, 2015). Recidivism rates remain high, despite research to determine how recidivism rates may be reduced (Seigle et al., 2014). Although diversion programs are known to help reduce rates of recidivism, the extent to which demographic and social risk factors are associated with participation in diversion programs and recidivism is not known (Tanner-Smith et al., 2013; Schwalbe et al., 2012; Wong et al., 2016). Statistical models based on multivariate analysis of risk factors have been developed to predict recidivism (Desmeres, Johnson, & Singh, 2016; Hempel, Buck, Cima, & Van Marle, 2013; Tully, Chou, & Browne, 2013; Zhang, Roberts, & Farabee, 2012); however, these models are post hoc, based on aggregated data derived from multiple studies, and their reliability and validity have been questioned (Zeng, Ustin, & Rudin, 2016). The use of statistical models to predict the impact of the interaction

between risk factors and diversion program participation on recidivism is challenging because juvenile offenders are a very heterogeneous group with respect to their demographic and social characteristics in different localities and jurisdictions (Calley, 2012; Carpentier & Proulx, 2011; Cuervo & Villanueva, 2015). The risk factors associated with diversion program participation and recidivism require further intensive study, particularly using primary data sources that track risk factors along with different types of diversion program within specific localities and jurisdictions (Seigle et al., 2014).

Purpose of the Study

The purpose of this quantitative study was to explore the statistical associations between the demographic and social characteristics of a sample of juvenile offenders located in a large urban probation department; the participation of the juvenile offenders in diversion programs; and the recidivism of the juvenile offenders. To achieve this purpose, a descriptive and inferential statistical analysis of archival data stored in an electronic database by a large urban juvenile probation department for 3 years (Brooks, 2013, 2014, 2015) was conducted. I was given access to a database containing descriptive data applying to a population of N = 4,656 juvenile offenders. However, I did not administer any instruments, did not operationalize any constructs, and did not have any personal interactions with the juvenile offenders or the probation staff.

The purpose of this study was conceptualized using the social learning theory of deviant behavior (Akers, 2009; Akers & Jensen, 2003, 2006; Akers & Sellers, 2008) This theory posits that the behavior of an individual is modeled after the behavior of other people in the individual's intimate social milieu, including his or her family, peers,

friends, and teachers. Accordingly, the hypothesized independent or predictor variables in the statistical analysis included the demographic and social characteristics of the juvenile offenders (e.g., age at the referral date, gender, race, size of family, guardian involvement, offense type, and whether or not the juveniles participated in a diversion program—specifically, a 90-day program [DP90] or a 180-day program [DP180]). Recidivism was the hypothesized outcome, criterion, or dependent variable, defined as whether or not the juvenile was re-referred for a new offense within 1 year.

Research Questions and Hypotheses

The research questions and associated null hypotheses that guided this study were as follows:

1. What are the demographic differences between juveniles in the 90-day diversion program (DP90) and the 180-day diversion program (DP180)?

   Ho1: There are no demographic differences between juveniles chosen for the DP90 and those chosen for the DP180.

2. What are the demographic differences in diversion program completion?

   Ho2: There are no demographic differences between juveniles by completion for the DP90 or DP180.

3. What is the difference in re-referrals for a new offense among the five groups (completed DP90; completed DP180; dropped out of DP90; dropped out of DP180; rejected)?

   $H_0$3: There are no differences in re-referrals for a new offense among the five groups.

Theoretical Framework

The historical theoretical framework that underpinned the purpose and research questions of this study was social learning theory. Originally proposed by Bandura (1972,1977,1986), social learning theory has been expanded so that it applies to the development of delinquent, deviant, and criminal behaviors as learned by individuals observing and emulating others. For example, juveniles often mimic the behaviors of authority figures such as parents, elder siblings, and teachers in their own environment. The theoretical work of Akers and colleagues explains how the behaviors of juvenile offenders, including their levels of recidivism, may be associated with exposure to maladaptive environments linked to social structures (Akers & Jensen, 2003, 2006; Akers & Sellers, 2008). These structural factors, including demographic characteristics and environmental influences, may ultimately influence a juvenile's decision as to whether to participate in conforming and/or nonconforming patterns of social behavior. Structural risk factors may lead to the acquisition, development, and reinforcement of differential definitions of the nature of crime, delinquency, and deviancy. Social learning theory helps to explain why certain juveniles begin to participate in criminal, delinquent, or deviant behaviors, and why they continue to offend. Social learning theory also helps to explain why some juveniles choose not to participate in criminal, delinquent, or deviant behaviors (Khron, Lane, & Winfree, 2015).

The social learning theory of deviant behavior posits that the behaviors of juvenile offenders may be associated with exposure to maladaptive environments related to the offender's location, age, gender, race, and other social forces (Akers, 2009; Akers & Jensen, 2003, 2006; Akers & Sellers, 2008; Brauer, 2009; Reingle et al., 2012). The risk

factors for juvenile offending, as suggested by social learning theory, include the personal states, traits, environmental conditions, and social influences of family, school, or community that are linked to the likelihood of a juvenile engaging in delinquent, deviant, or criminal behaviors (Cuervo & Villaneuva, 2015; Khachatryan, Heide, & Hummel, 2016; Mulder et al., 2011, 2012; Murray & Farrington, 2010; Shepherd, Luebbers, & Dolan, 2013; Steketee, Junger, & Junger-Tas, 2013; Van der et al.,P2013). These risk factors are broadly classified into three categories or domains: individual, social, and community (Shader, 2002; Vincent et al., 2012). Each of these categories includes several subcategories (e.g., family- and peer-related risk factors are grouped under the social category), with a division between static and dynamic risk factors.

Alternative theoretical frameworks such as general strain theory and social bond theory have been developed to explain delinquent, deviant, and criminal behaviors. General strain theory explains how strain factors, such as victimization, discrimination, and a desperate need for money, can create negative emotions leading to juvenile criminal behaviors (Agnew, 2014; Eitle, 2011; Jaggers, Tomek, Bolland, Church, Hooper, et al., 2014; Moore, 2011). Social bond theory, originally developed by Hirschi (1969), posits that individuals who have strong attachments to society are less likely to violate the norms of society. Strong attachment to society is characterized by engagement in conventional activities and moral beliefs that do not violate the law (Chriss, 2007). Therefore, delinquency, deviance, and criminal activity, including recidivism, may be controlled through improving the emotional bonds between offenders and individuals who are not offenders (Duwe & Clarke, 2013; Tibbetts & Hemmens, 2015). Social learning theory, however, is currently regarded as one of the most robust conceptual

frameworks to explain how risk factors associated with negative stimuli in antisocial environments may significantly influence the criminal behaviors of juvenile offenders (Khron et al., 2015; Holt, 2016). Consequently, social learning theory was the main theoretical framework that underpinned the current study. The applications of social learning theory to research on the behavior of juvenile offenders including recidivism are discussed further in Chapter 2.

Nature of the Study

A quantitative methodology was selected because of its appropriateness and the need to explain a phenomenon using variables (i.e., numerical data that do not remain constant) analyzed by descriptive and inferential statistics in order to address the stated research questions and test the predefined hypotheses. The research design was defined as descriptive, correlational, and factorial because this design facilitated the examination of the statistical relationships among multiple variables, without any attempt to manipulate the characteristics of the participants or control the values of the variables (Fraenkel & Wallen, 2010). This research design allows for the testing of the hypotheses. For practical, logistical, and ethical reasons, it was not possible for me to conduct an experimental design involving the assignment of the juvenile offenders into groups and/or altering the juvenile risk factors. A correlational and factorial design was justified because this design is commonly applied by researchers to examine the risk factors associated with a specified outcome based on the inferential statistical analysis of archival data stored in a database. Examples of similar designs in the literature include those applied to the analysis of the factors associated with the risk of disease in epidemiological research (Woolhouse, 2011) and the factors associated with the risk of

recidivism in criminological research (Calley, 2012; Case & Haines, 2009; Dadashazar, 2017).

The key concepts investigated in this study were risk factors, demographics, and social characteristics of the juvenile offenders. The archival data were provided by a large urban probation department and contained annual reports from January 1, 2013 to December 31, 2015. Details of the variables used in this study are defined in Chapter 3.

Definitions

The following terms and phrases are used in this study.

Diversion program: An alternative intervention strategy in which juvenile offenders are redirected away from formal processing in the juvenile justice system but are still held accountable for their actions (Schwalbe et al., 2012).

Deferred prosecution (DP): Mainly for first-time offenders who have committed misdemeanor offenses. DP is also an optional alternate, informal agreement to adjudication in which the juvenile offender agrees to specific probation conditions in lieu of criminal prosecution (Giudice, 2011). Upon successful completion of probation and conditions, the juvenile offenders avoid formal prosecution, and the pending charges are dismissed.

DP90: DP90 supervision is designed for juvenile offenders who commit misdemeanor offenses. DP90 is a probationary period of 90 days of supervision designed for first-time offenders who are required to adhere to certain stipulations (i.e., restitution, urinary analysis [UA], curfew, community services, paying fines, and diversion programs) within this time frame.

DP180: DP180 supervision is a probationary period designed for first-time juvenile offenders who commit misdemeanor offenses. During this probationary period, juvenile offenders are required to adhere to certain stipulations (i.e., restitution, UA, curfew, community services, paying fines, and diversion programs).

Juvenile offenders: Youth 10 to 16 years of age who commit illegal acts as defined by the crime statutes of the jurisdiction in which the offenses occurred (National Institute of Justice, 2014).

Recidivism: Re-referral for a new offense within 1 year for a juvenile offender who is already known to have been arrested for at least one other offense (Harris, Lockwood, Mengers, & Stoodely, 2016).

Risk factor: Any variable that is associated with an increased likelihood that an individual will engage in delinquent, deviant, and/or criminal activity (Calley, 2012). In the context of this study, risk factors include personal characteristics, traits, environmental conditions, and social influences of family, school, or community that are linked to the likelihood of a juvenile engaging in recidivism.

Social learning theory: This theory posits that the behaviors of juvenile offenders may be associated with exposure to maladaptive environments related to the offender's location, age, gender, race, family background, and other social forces (Akers, 2009)

Assumptions

In order to conduct a valid statistical analysis with meaningful conclusions, I confirmed the assumption that the archival data used in this study were accurate and up to date with the research manager at [redacted] Juvenile Probation Department. The data were collected according to recognized ethical guidelines by a provider with valid

state licensures and credentials to offer professional services to juvenile offenders. The other major assumption that is consistent with the use of archival data is that the measured variables present in the data set sufficiently represent the constructs of the study (Collier, Sekhon, & Stark, 2010).

Scope and Delimitations

The scope of this study was restricted to the analysis of archival data describing one population of male and female juvenile offenders, from 10 to 16 years of age, located in a large urban probation department in the southern United States between January 1, 2013 and December 31, 2015. The study was delimited by the availability of the archival data provided by the probation department, as well as by the assumption that the principles of social learning theory were applicable to correctional and criminal justice practice (Khron et al., 2015; Holt, 2016) and the assumption that a correlation between participation in diversion programs and recidivism had already been established in the literature (Schwalbe et al., 2012; Wilson & Hoge, 2013).

Limitations

A major limitation of this study was that the findings based on the demographic and social characteristics of one population of juvenile offenders located in one urban probation department may not be representative of the juvenile offender population in the United States as a whole. The external validity of the results and conclusions may therefore be limited.

Binary logistic regression analysis was the statistical technique used to address the research questions and test the associated hypotheses. The limitation of binary regression analysis is that if the sample size is too small, implausible results will be

produced (Hosmer & Lemeshow, 2000). Consequently, consideration was given to ensuring that the sample size was large enough to provide adequate statistical power to achieve meaningful conclusions. The results of a power analysis are presented in Chapter 3.

The limitation of the statistical analysis of archival data was that it only enabled me to investigate events retrospectively. Although it is possible, using statistical models, to generate conclusions that may be consistent with the existence of hypothesized relationships between causes and effects, it is not possible, through the statistical analysis of archival data alone, to prove the existence of causal relationships (Collier et al., 2010).

Significance of the Study

The significance of this study is that it provides new knowledge and understanding of the extent to which the demographic and social characteristics of juvenile offenders (e.g., age at the referral date, gender, race, size of family, guardian involvement, and type of offense) may act as risk factors by increasing or decreasing the strength of the association between participation in a diversion program and recidivism. The findings of this study may be beneficial to the administrators of diversion programs by providing empirical evidence to help them target their efforts in a more efficient and cost-effective manner. The conclusions of this study may contribute to supporting better decisions for providing appropriate services for specific groups of at-risk juvenile offenders, according to their specific demographic and social characteristics, and to design services that provide an outcome that is personalized to the needs of each individual program participant.

Summary

The incarceration of juvenile offenders in residential placement involves a considerable financial burden, and the high rate of recidivism of juvenile offenders is also a major problem for the judicial system (Justice Policy Institute, 2015). One of the difficulties facing researchers attempting to determine if intervention programs help to reduce recidivism is that juvenile offenders are a very heterogeneous group (Calley, 2012; Carpentier & Proulx, 2011; Cuervo & Villanueva, 2015). Understanding how the interactions between the individual demographic and social characteristics of a juvenile offender and the type of intervention program may predict the risk of recidivism will help leaders in the judicial system to develop policies to reduce recidivism. In the following chapter, the research literature is summarized to describe what is known about diversion programs and risk factors for juvenile offending, and the gap in knowledge that this study was designed to examine is clarified.

Chapter 2: Review of Related Literature

Introduction

Recent systematic reviews and meta-analyses have examined the risk factors associated with persistent juvenile offending (Assink., 2015; Joliffe, Farrington, Piquero, Loeber, & Hill, 2017; Pusch & Holtfreter, 2018; Wilson & Hoge, 2013). These studies have revealed the predictive importance of demographic factors such as the geographic referral date, gender, age at the time of the referral date, level of education, family systems, as well as childhood trauma and social influences as critical predictors of recidivism. These studies have also pointed out the need for more research on how these demographic risk factors are associated with the type of diversion programs offered by different jurisdictions (Seigle et al., 2014).

The purpose of this quantitative study was to examine the relationships between the demographic and social characteristics of a sample of juvenile offenders located in a large urban probation department; the participation of the juvenile offenders in two different diversion programs; and the recidivism of the juvenile offenders. To achieve this purpose, a descriptive and inferential statistical analysis of archival data stored in an electronic database by a large urban juvenile probation department for 3 years (2013, 2014, and 2015) was conducted.

Following an outline of the literature research strategy, this chapter restates the problem and purpose of the research. I then provide a synopsis of the current literature to establish the relevance of the problem under the following headings: (a) Conceptual Framework, (b) Legal and Justice System, (c) Prevalence of Juvenile Offending, (d) Risk

Factors for Juvenile Offending, (e) Prevalence of Recidivism, (f) Treatment of Juvenile Offenders, (g) Psychological Treatment, (h) Diversion Programs, and (i) Summary.

Literature Search Strategy

A comprehensive review and search of online literature was performed using the ESBCO databases, Academic Search Premier, PsycARTICLES, and PsycINFO, as well as the medical research database PubMed. The following key words were used separately and in combination to search databases and obtain information relevant to the literature review: *social learning*, *juvenile offender*, *recidivism*, and *diversion program*.

I also retrieved and reviewed summary reports between January 1, 2013 and December 31, 2015 that highlighted key elements (e.g., referrals, referral activity, and petition) and provided an overview of yearly data findings/outcomes of juveniles who had become involved in delinquent behavior.

Theoretical Foundation

Social learning theory has its roots in Bandura's (1972, 1977, 1986) conceptualization of how learning takes place in a social context, and as such can occur through both direct instruction and observation. One of its more popular and well-supported areas of application is in the understanding of juvenile criminal behavior, because it emphasizes that individuals learn adverse behaviors by observing and emulating others (Khron et al., 2015; Holt, 2016). A historical perspective is presented below to explain how social learning theory has developed over time.

Akers (1998) developed the differential association-reinforcement theory, with applications to criminology, originally proposed by Burgess and Akers (1966) to explain how criminal behavior is learned and is more likely to occur when a person becomes

associated with other individuals who engage in crime. Social learning theory therefore explains why individuals do not become involved in crime, instead opting to participate only in conforming behaviors. It is also applicable to various abnormal behaviors and is thus pertinent to recidivism.

Association with criminals not only provides a person with an opportunity to observe criminal behavior, but also reinforces attitudes that are approving of crime. Akers (1998) proposed that various modalities determine the extent to which relationships with others (e.g., parents, peers, coworkers, neighbors, etc.) have an impact on the learning process. These modalities include (a) the frequency and duration of the relationship (i.e., how much time is spent together, and how long the relationship has existed); (b) how early the relationship developed (i.e., in early childhood or in adulthood); and (c) intensity (i.e., how close the relationship is). Frequent associations of long duration and strong intensity that are developed in childhood with role models who approve of crime are more likely to lead to criminal behavior. Akers tested the validity of social learning theory as an explanation for criminal behavior with two empirical studies. In the first study, social learning variables, including peer association, reinforcement, and modeling, were found to be significant predictors of the likelihood of men committing rape. In the second study, Akers found that social learning variables predicted the likelihood of men engaging in sexual aggression, sexual coercion, and use of drugs and alcohol as a coercive sexual strategy.

Subsequently, Akers and Jensen (2006) provided a more comprehensive understanding of the relationship between social learning processes and criminal behavior by collecting a series of articles in which researchers tested social learning theory, based

on analysis of empirical quantitative and qualitative data. Several themes emerged from these articles, which may be summarized as follows:

- Social learning theory explains common social processes resulting in crime that are independent of the sociocultural context (i.e., the theory is applicable to all individuals, irrespective of their gender, age, race, or geographic region).
- Differential exposure to crime, and differential reinforcement of the attribution of blame for crime, are social learning behaviors that explain the propensity for different individuals to commit crime.
- The differences between the levels of crime committed by individuals classified or grouped by demographic variables (e.g., gender, age at the referral date, race, and geographic region) are mediated by social learning processes.
- Differences in social learning processes result in the differential attribution of blame for crime by different individuals, or groups of individuals.
- Many environmental factors, including the quality of an individual's interactions with family, school, and peers, may lead to differential exposure to criminal behavior, and to differential perceptions about law and authority, both of which define the social reactions of an individual to criminal behavior.
- Community contexts (including occupational structure, socioeconomic status, urbanization, disorganization, and racial inequality) are additional environmental factors related to social learning processes, leading toward higher levels of criminal behavior in certain communities.

- Reinforcement to persuade an individual to avoid criminal behavior has differential effects; it may result in failure of the individual to learn socially desirable behavior, thereby leading the individual to reoffend, or it may have the desired outcome.
- The principles of social learning theory are applicable to correctional and criminal justice practice.

Akers (2009) proposed the social structure-social learning (SSSL) model as a general theory to explain criminal behavior. Structural factors such as location, gender, race/race, socioeconomic status, friendship/peer groups, classify the positions and roles of juveniles into categories within their overall social structure. The SSSL model posited that the correlations between structural/social conditions in a community and learning processes are mediated by social learning variables. Structural social/social conditions not only include the gender and racial/ethnic composition of a community, but also family groups and peer groups, as well as social disorganization variables, such as conflict and oppression between groups. Empirical research evidence to support the SSSL model, however, is limited, providing a direction and rationale for more research on the impact of structural factors on recidivism (Cullen & Wilcox, 2010; Kim, Akers, & Yun, 2013).

Social learning theory is currently applied as an effective, successful theoretical approach among researchers examining the origins and development of criminality, because juveniles often mimic behaviors of authority such as a parent or a sibling in their own environment (Khron et al., 2015; Holt, 2016). Much empirical evidence has demonstrated that juveniles are more likely to mimic behaviors of individuals who

influence them, and thereby learn by way of close contact with significant, relevant individuals to whom they have immediate access on a continual basis. The theory of social learning implies that bad parenting impacts juvenile delinquent behavior. Family organization may also influence recidivism. Juvenile offenders with dysfunctional family relationships have been found to be significantly more likely to continue offending (Ryan, Williams, & Courtney, 2013).

Although critics have pointed out that the social-learning explanation of juvenile offending and recidivism is somewhat idealistic and has its limitations (Bradshaw, 2011; Pratt, Cullen, Sellers, Winfree, Madensen, 2010), the theory has been validated through several research studies on juvenile delinquent, deviant, and criminal behaviors (Brauer, 2009, 2012; Jennings, & Maldonado-Molina, 2012; Kim, Akers, & Yun, 2013; Meldrum, Connolly, Flexon, & Guerette, 2016; Trulson, Caudhill, Haerle, & Delisi, 2014; Williams, 2007).

Literature Review Related to the Key Variables and Concepts

Legal and Justice System

The primary responsibility of the judicial justice and legislation system is to ensure the rights of society and the community's safety, implying that juvenile offenders who pose a significant danger to their community should be monitored closely (Saleh, Grudzinskas, Bradford, & Brodsky, 2009). Other than diversion programs, little has been done by the legal and judicial system to help curb the number of crimes committed by juvenile offenders. A major problem is that the progressive views of policymakers and researchers about criminal justice reform are not generally popular with legislators,

politicians, and the public, who consistently advocate a tough-on-crime policy (Holloway, 2016).

There is still a need for much closer interaction and cooperation between the legal justice system, lawyers, politicians, psychologists, psychiatrists, and researchers. The legal and justice system is still challenged by the very high prevalence of juvenile offending. More evidence needs to be collected by researchers to accomplish their common goals of developing policies for appropriate risk management and treatment procedures for juvenile offenders (Saleh et al., 2009).

Prevalence of Juvenile Offending

The census of juvenile offenders detained in residential placement revealed a drop from 28,040 in 1997 to 17,803 in 2013 (Sickmund, Kang, & Puzzanchera, 2015). In 2010, the U.S. juvenile population was more than 74 million, of which 1.6 million were arrested as juvenile offenders, a reduction of 21% from 2001 (National Center for Juvenile Justice, 2015). The arrest rates of juvenile offenders for all crimes in the United States increased between 1980 and 1996, but between 1997 and 2014, there was a 65% drop in the arrest rate (Office of Juvenile and Delinquency Prevention, 2015).

One reason for the decline in juvenile arrests in the last 30 years is that the peak in juvenile crime in the 1990s prompted many states to make it easier for juvenile offenders to be tried as adults, and so they were not counted as juveniles in the judicial system (Tanner-Smith et al., 2013). Another reason for the decline in the arrest rates of juvenile offenders is that the increased cost of detention has led states to consider alternative approaches to processing juvenile offenders (Justice Policy Institute, 2015). Diversion programs may help to remove first-time offenders from traditional judicial processing,

thereby alleviating the problem of overburdened juvenile courts and overcrowded detention facilities. Diversion programs may also help to reduce recidivism by targeting high-risk juvenile offenders with a recurrence of illegal behavior after a previous adjudication (Wilson & Hoge, 2013).

Risk Factors for Juvenile Offending

The risk factors for juvenile offending, based on demographic characteristics and social backgrounds and influences, are broadly classified into three categories or domains: individual, social, and community (Shader, 2002; Vincent et al., 2012). Each of these categories includes several subcategories (e.g., family- and peer-related risk factors are grouped under the social category), with a division between static and dynamic risk factors. Interventions focusing on reducing risk factors have emerged based on recent research including diversion programs (Jordan et al., 2013; Schwalbe et al., 2012; Turpin, 2013; Wilson & Hoge, 2013; Wong et al., 2016); restorative justice programs (Bergseth & Bouffard, 2013); and cognitive behavioral therapy (Caldwell, 2011).

The demographics, educational levels, and family backgrounds of juvenile offenders, which may be identified as risk factors for offending, have been previously studied. Bergseth and Bouffard (2013) reported that eighty-five 85% of all juvenile offenders in residential placement were male. Fifty-one percent were in the oldest age group (16 to 17 years old). Thirty-five percent were White (non-Hispanic); 32% were Black/African American, and 24% were Hispanic. Seventy-six percent were enrolled in school when they entered custody. Fifty-three percent admitted to skipping classes in the year before they entered custody, and 57% had been suspended from school in the same year. At the time when they were taken into custody, more juvenile offenders were living

with one parent 45% than with two parents 30%, and 25% were not living with any parent. Rhoades et al., (2015) presented evidence to indicate that gender differences were risk factors for juvenile offenders, and, thus potentially, for the development and use of interventions tailored differently for male and female juvenile offenders to reduce their risk of recidivism.

Vincent et al., (2012) divided juvenile risk factors for offenders into static and dynamic. A static risk factor is one that "cannot be changed through intervention" (Vincent et al., 2012, p. 32). Examples of static risk factors include the gender of the offender, the age of the offender at the time of the first offense or contact with the law, the offender's previous frequency and severity of delinquent activity, and the historical influence of the offender's parents. Examples of dynamic risk factors include current poor parent-child relationships, substance abuse, deviant peer relations, poor academic performance, medical/physical problems, antisocial attitudes/beliefs, aggressive behavior, and issues with hyperactivity, impulsivity, and attention deficit.

Vincent et al., (2012) suggested that both static and dynamic risk factors may predict recidivism. Dynamic risk factors may be further divided into (a) criminogenic need factors and (b) noncriminogenic need factors. Criminogenic need factors can be changed through interventions to prevent recidivism (e.g., improving parenting practices and peer relations, preventing substance abuse, helping with academic performance and medical/physical problems, and controlling antisocial attitudes/beliefs, aggressive behaviors, hyperactivity, impulsivity, and attention deficit issues). Psychiatric assessments have revealed that noncriminogenic need factors, such as low self-esteem

and depression, have little or no influence on recidivism, because some repeat offenders suffer from low self-esteem and depression, whereas others do not (Baird, 2009).

There is further evidence to suggest that other risk factors for juvenile offender perpetration may include educational and behavioral problems, feelings of social isolation, and various psychopathologies. Additionally, juvenile offenders often have peer relationship problems, a history of alcohol and drug abuse, and dysfunctional families, which may lead to recidivism (Roe-Sepowitz & Krysik, 2008). Juvenile offenders may experience other risk factors such as frequent changes in their family and school systems, divorced parents, and unstructured parenting, that can be associated with their aggressive and criminal behaviors (Hanser & Mire, 2008).

Finkelhor (1995) studied the invasive, harmful impact of childhood maltreatment among juvenile offenders. He emphasized that "the impact of victimization on these processes needs to be systematically considered" (Finkelhor, 1995, p. 184). Nevertheless, to date, no specific risk factors for juvenile offender perpetration have been established. Furthermore, although treatment programs geared toward juvenile offenders have been developed (Shaw, 2004), the benefits of treatment programs to help reduce the recidivism rate have not been extensively studied (Blenkiron, 2009).

It is evident that many questions remain to be answered regarding the relationships between juvenile offender perpetration, recidivism, and the efficacy of rehabilitation programs. It is not known whether the efficacy of treatment programs or the relative risk of recidivism vary on demographic or other factors. Consequently, more research is needed to address unanswered questions. Many risk factors have been reported in the literature to be associated with juvenile offender perpetration and recidivism. Despite being the subject

of research for over 30 years, more research is required to determine the risk factors for the recidivism of juvenile offenders.

Van der Put et al., (2013) found differences in the dynamic risk factors for recidivism among various groups of juvenile offenders. Nonetheless, more independent high-quality research is needed to identify all the dynamic risk factors that may predict the recidivism of juvenile offenders. Recognizing factors that increase a juvenile's behavior to participate in delinquent behaviors can support the development of an efficient intervention.

Prevalence of Recidivism

Recidivism is defined as the re-referral for a new offense of an individual who is already known to have been arrested for at least one other offense (Harris et al., 2016). Recidivism among juvenile offenders is high. Aebi et al., (2011) estimated that among a sample of 223 adjudicated juvenile sex offenders, 44.8% reoffended with a sexual or nonsexual offense during a mean follow up period of 4.3 years. Carpentier & Proux (2011) estimated the recidivism rates of a sample of 351 male adolescents who sexually offended. Over an 8-year follow-up period, 45% of the participants were charged with a new criminal offense. According to Seigle et al., (2014) the recidivism rates for juvenile offenders returning from detention can be as high as 75% within three years of release. Over sixty percent of youth in residential placement, had already been adjudicated and committed to placement in their current program. Seven percent have been adjudicated and awaited placement. Fourteen percent had not yet been adjudicated, and 13% has been adjudicated but their sentence had not yet been determined. The percentage of youth who

were committed was substantially less in detention programs than in other types of programs (28% in detention versus 80% in other programs).

Treatment of Juvenile Offenders

Because juvenile offenders are a complex and heterogeneous population, the treatment model chosen to reduce recidivism among juvenile offenders ideally needs to be aimed at multiple risk factors (Dwyer & Letourneau, 2011; Ryan et al., 2013, Schwalbe et al., 2012; Seigle et al., 2014). Risk assessment is therefore considered to be a key element in the prevention of recidivism among juvenile offenders, and long-term consequences are based on the results of individual risk assessments. Examples of risk assessment tools include the LSI-R (Level of Service Inventory), COMPAS (Correctional Offender Management Profiling for Alternative Sanctions), OASys (Offenders Assessment System), PACT (Positive Achievement Change Tool), LS/CMI (Level of Services/Case Management Inventory), and the YASI (Youth Assessment and Screening Instrument) (Coohey, Johnson, Renner, & Easton, 2013; Howard & Dixon, 2013; Schwalbe, 2008; Zhang, Roberts, & Farabee, 2011) and ERASOR (Worling, Bookalam, & Littlejohn, 2013).

Few of the instruments currently in use provide unequivocal positive results in predicting future rates of offending of juvenile offenders. Van der Put et al., (2013) found differences in the dynamic risk factors for recidivism among various groups of juvenile offenders. Hempel et al., (2013) suggested that because of the rapid development of juveniles, it is questionable to impose long-term restrictions based on a risk assessment only. Efforts to predict the rate of recidivism, based a meta-analysis of the risk factor data in 43 studies provided very variable results (Tully et al., 2013). More

independent high-quality research is needed to identify all the dynamic risk factors that may predict the recidivism of juvenile offenders. The development of more reliable and valid structured risk assessment tools for predicting adolescent recidivism may help to alleviate this situation (Worling, Bookalam, & Littlejohn, 2012).

The difficulty of evaluating risk factors for recidivism rates among heterogeneous groups of juvenile offenders, is that within any group, many risk factors other than the offense, and the type of detention, affect the likelihood of recidivism. To overcome this source of confusion, Ryan et al., (2013) used a statistical technique called "propensity score matching". Offenders with similar background characteristics were matched together to predict how they, as a group, were likely to reoffend. The key findings of this study included (a) male offenders were significantly more likely to reoffend than female offenders; (b) Black offenders were significantly more likely to reoffend compared to both Hispanic and White offenders; (c) Black and Hispanic offenders were more likely to receive detention in either a probation camp or group-home setting compared to White offenders adjudicated for a similar offense. Family-related factors were also correlated with recidivism. The risk of recidivism was 1.36 times greater for juvenile offenders with an open child welfare case. Ryan et al. urged more research on the risk factors for recidivism, but more recent evidence is limited. Rhoades et al., (2015) presented evidence to indicate that gender differences were risk factors for reoffending, and, thus potentially, for the development and use of interventions tailored differently for male and female juvenile offenders to reduce their risk of recidivism.

It appears that, despite the considerable body of research on juvenile offenders, little has been achieved by the legal and judicial system in the 21st century to help curb

recidivism by juvenile offenders. The legal and justice system is still challenged by the very high rate of juvenile recidivism. For this reason, Seigle et al., (2014) presented a report entitled "Core principles for reducing recidivism and improving other outcomes for youth in the juvenile justice system". The key improvement strategies are as follows:

Principle 1: Base supervision, service, and resource-allocation decisions on the results of validated risk and needs assessments.

Principle 2: Adopt and effectively implement programs and services demonstrated to reduce recidivism and improve other youth outcomes and use data to evaluate system performance and direct system improvements.

Principle 3: Employ a coordinated approach across service systems to address youth's needs.

Principle 4: Tailor system policies, programs, and supervision to reflect the distinct developmental needs of adolescents.

The four principles are underpinned by the recommendation that the best way to help prevent a youth's subsequent contact with the juvenile justice system is to prevent him or her from being involved with the system in the first place, justifying the implementation of diversion programs, as described in the next sections.

Psychological Treatment

The importance of treatment to help reduce recidivism among juvenile offenders was established in two recent studies. Olver & Wong (2009) found that juvenile offenders who failed to complete treatment were more likely to recidivate than complete. Overall, the results indicated that, given appropriate treatment interventions, juvenile offenders that show improvement could reduce their risk of recidivism. Beggs & Grace (2011) similarly

found that measures of treatment change, based on self-reports and structured clinical rating systems, indicated that effective treatment could lead to a significant reduction in the recidivism of juvenile offenders. This optimistic view leads to a discussion of the importance of clinical assessment, treatment, and prevention programs for juvenile offenders.

The latest systematic reviews of the literature on the clinical assessment, treatment, and prevention programs for juvenile offenders have revealed that (a) the benefits of treatment programs in treating the recidivism rate for juvenile offenders have not been extensively studied (Blenkiron, 2009); and (b) it is unclear exactly which type of treatment is the most effective (Dwyer & Letourneau, 2011). Because offender treatment outcome research is not well developed, definitive conclusions are not yet possible (Hanson & Yates, 2012).

Historically, juvenile offender treatment has not always been consistent (Becker & Murphy, 1998; Laws & Marshall, 2003). Even though there is a substantial amount of literature on the treatment of juvenile offenders, only a few controlled studies demonstrate the outcome of treatment. Nowadays, only a modest amount of experimental research exists concerning the usefulness of treatment regarding existing juvenile offenders (Borum, 2003; Blenkiron, 2009). Intervention, however, needs to occur during the early stages of the behavior. These steps are important to comprehend better how societal failures impact a juvenile's criminal behavior. In recent years, several strategies have been implemented to prevent and diminish juvenile offense perpetration such as community-based treatment programs, and multisystemic therapy (e.g., Brewer et al., 1995; Center for Sex Offender Management; Hunter & Figueredo, 1999; National Crime Prevention Council, 1994).

In the past, there was no effective way to measure the effectiveness of juvenile offender treatment, primarily due to this population being difficult to treat. Brown et al., (1997) examined a multi-systematic approach used with juvenile offenders. It appears that the multi-systematic approach focused on one facet of treatment and was an unsuccessful intervention for treating the whole problem. The importance of treatment to help reduce recidivism among juvenile offenders was established in two recent studies. Olver & Wong (2009) found that juvenile offenders who failed to complete treatment were more likely to recidivate than complete. Overall, the results indicated that, given appropriate treatment interventions, juvenile offenders that show improvement could reduce their risk of recidivism. Beggs & Grace (2011) similarly found that measures of treatment change, based on self-reports and structured clinical rating systems, indicated that effective treatment could lead to a significant reduction in the recidivism of juvenile offenders. This optimistic view leads to a discussion of the importance of clinical assessment, treatment, and prevention programs for juvenile offenders.

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Juvenile offenders with serious psychotic disorders provide a more serious challenge, due partly to minimal research on their treatment. Frequently, these individuals engage in deviant behaviors, including sexual offenses, that result in hospitalization rather than incarceration. The overburdened and resource-deficient mental health system is generally ill-equipped to address the needs of this special group of offenders (Stenson & Becker, 2011).

A large amount of literature has considered the outcomes of studies using cognitive behavioral therapy (CBT) with respect to juvenile and other types of offenders (Hollon &

Beck, 2013). CBT does not exist as a distinct therapeutic technique. It is a very general term to classify a group of mental health counseling techniques (psychotherapies) with commonalities. CBT is generally undertaken for specific problems and the therapist tries to assist the offender in selecting specific strategies to help address those problems. The therapist uses CBT techniques to help offenders to become aware of their maladaptive, inaccurate, or negative thinking, so that they can view challenging or stressful situations more clearly and respond to them in a more effective way (Schacter, Gilbert, & Wegner, 2010). It has been argued, however, with respect to CBT that "although reports from individual programs and meta-analyses support its efficacy, overall, the strength of the evidence base supporting this therapy is weak and much more empirical research is needed" (Kaplan & Krueger, 2012, p. 291).

Diversion Programs

According to the Texas Juvenile Justice Department, Texas incarcerated youth at a higher rate compared to youth referred to diversion programs for rehabilitative services. Processing an offender through the court system does more damage than good (Diversion Programs, 1999). Bill 1630, passed in 2015 that mandated Juvenile Justice Systems to establish effective approaches to improve juvenile probation departments in large urban communities (Langford, 2015). Senate Bill 1630 aided in the shift of incarcerating youth to involving the offender and their family into community-based resources. Since the juvenile justice system is about rehabilitating, this bill also, allowed juvenile probation departments with the assistance of probation officers, prosecutors and the courts establish an effective plan. For first time offenders, diversion programs, an alternative to the court system, are designed to correct the offender's behavior. Upon successful completion of the program

the offenders charge is dropped, and a criminal record is avoided. Diversion programs result in better outcomes and helps decrease the court's docket of an already overwhelmed system (Cohen & Broderick, 2016).

The intent of diversion programs is to prevent or intervene in abnormal behavior that can ultimately result to more serious offenses. Such programs are voluntarily and are recommended by prosecutors or the court system. In large urban communities' diversion programs for, juvenile offenders, is an optional community-based service. The advantage of an effective diversion program is it's used to deter first time, nonviolent, offenders who are at risk of committing other offenses. Juvenile diversion programs in large urban communities provide early intervention and prevention services to first time offenders that have committed misdemeanors or nonviolent offenses. Diversion programs in large urban communities, are normally provided prior to the youth entering the criminal justice system. Simultaneously, the offender is also on DP90 or DP180 probation. Should the offender not complete the conditions of their probation their case is referred for prosecution or to the courts, should they be eligible (Schwalbe et al., 2012). Offenders with non-violent offenses are often referred to DP90 or DP180 supervision. This form of probation aids the offender through three or six months of supervision to deter their continued involvement in the juvenile justice system.

Diversion programs incorporate one or more key elements toward rehabilitating juvenile offenders. A diversion program is an alternative intervention approach that deters juvenile offenders from involvement within the juvenile justice system for at least one year; while still holding the offender responsible for their offense (Schwalbe et al., 2012). Diversion programs also identify resources and services for high-risk juvenile

offenders and lessen the problem on overcrowded youth commissions and juvenile detention facilities (Justice Policy Institute, 2015). Even though the main objective of diversion programs is to prevent first-time offenders who commit minor offenses from traditional judicial proceedings and prosecution by the judicial system, some diversion programs could also be applicable to high-risk juvenile offenders with special/high risk needs i.e., mental health or substance abuse issues (National Institute of Justice, 2016).

Diversion programs operate under the social learning theory and propose to hold juvenile offenders accountable for their offenses by promoting positive role models through pro-social behaviors. As an alternative, to traditional judicial proceedings social learning theory, as it relates to diversion programs for juvenile offenders focuses aggressively on behavior and cognitive learning. Implementing a program to deter first-time offenders that commit minor offenses away from the juvenile judicial system may improve the recidivism rate of juveniles committing serious offenses resulting in further prosecution (Petrosino et al., 2010). The process of intervening by the judicial system might essentially increase recidivism/reoffending behavior. Therefore, it is more appropriate in this circumstance to rectify the accepted standards of offenders in a less formal way.

Conflicting expectations, findings, and conclusions have emerged from this disjointed and complicated mixture of interventions. Although many studies show that diversion programs are successful in reducing recidivism, these studies are balanced by studies that find no impact. Wilson and Hoge (2013) conducted a meta-analysis to determine whether diversion programs reduce recidivism more than traditional judicial system processing. Forty-five diversion evaluation studies reporting on 73 programs were

included in the meta-analysis. The results indicated that diversion programs may be more effective in reducing recidivism than conventional judicial interventions; however, further research was recommended, using strong research designs, to explore the role of multiple risk factors in reducing recidivism. More recently, Kretchmar, Tossone, Butcher, and Marsh (2018) conducted a study using logistic regression analysis concluding that juveniles who successfully completed a juvenile diversion program had lower odds of re-offending.

Family-based therapies may have a significant effect on recidivism. In a meta-analysis of 28 experimental studies concerning diversion programs for juvenile offenders, Schwalbe et al., (2012) found that only family-based therapies, including multiple family group formats, including, and parent management training, helped to reduce recidivism among juvenile offenders. The results, however, were confounded by the heterogeneous background characteristics of the juvenile offenders. It is essential to understand the extent to which recidivism varies according to the individual background characteristics of each juvenile offender, because an intervention that works for one type of offender may not work for another (Seigle et al., 2014).

Diversion programs involving adventure-based activities have been developed to treat juvenile offenders in recent years. Gillis & Gass (2010) tested three such programs (YDC, OSP, and LEGACY) and compared their effectiveness, as measured by recidivism rates over two to three years. Overall, three-year recidivism rates were as 34.8 percent for YDC, 32.6% for OSP, and 19% for LEGACY, indicating that the LEGACY program was the most effective.

Benefits of Diversion Programs

In terms of cost, diversion programs are less costly then court proceedings when compared to involvement with the juvenile justice system, predominantly for first-time offenders with minor offenses. According to Sickmund, Sladlky, Kang, and Puzzanchera (2008) approximately 93,000 juvenile offenders are detained in juvenile justice facilities throughout the United States. Of the 93,000 juvenile offenders, seventy percent of these offenders are placed in state-funded placements, at an average cost of $240.99 daily. Each year, states spend approximately $5.7 billion incarcerating youth, despite many offenders are detained for nonviolent offenses. With the continual issues of budgetary constraints, one way to reduce spending is by decreasing the amount of state funds for incarceration and invest more funding into community-based services i.e., diversion programs (Sickmund et al., 2008).

Many large urban communities are redirecting state funds from inefficient and costly state facilities in the direction of effective community-based treatment, i.e., diversion programs that cost significantly less. Community-based treatment i.e., diversion programs are also productive in deterring the offender behavior and recidivism (Sickmund et al., 2008). Furthermore, detaining offenders in state facilities, not only increases state spending it also expands to millions of dollars spent in the court system. Overall, the cost of juvenile offender's participation in diversion programs compared to juvenile offenders incarcerated is far less. The yearly operating rate of expenditures for housing juvenile offenders in state prisons is much greater. This is a clear indication that diversion programs are effective and save taxpayers and the state.

Summary and Conclusions

The purpose of the literature review was to summarize the research that has been conducted and that is needed to determine the extent to which individual characteristics of a juvenile offender are associated with diversion programs and recidivism. The results will help the judicial system to develop policies to reduce recidivism, and also help to reduce the costs associated with recidivism (Justice Policy Institute, 2015).

Recidivism among juvenile offenders is high. Because juvenile offenders are a complex and heterogeneous population, the treatment model chosen to reduce recidivism among juvenile offenders ideally needs to be aimed at multiple risk factors. The difficulty of evaluating risk factors for recidivism rates among heterogeneous groups of juvenile offenders, is that within any group, many risk factors other than the offense, and the type of detention, affect the likelihood of recidivism. These risk factors may include gender, age at the time of referral, race/race, family relationships, and type of detention or rehabilitation program.

Diversion programs have been implemented to reduce recidivism and improve their outcomes for youth in the juvenile justice system. Although many studies show that diversion programs are successful in reducing subsequent deviance, these studies are balanced by studies that find no impact. More research is required to examine the extent to which individual characteristics of a juvenile offender predict the relationship between diversion programs and recidivism.

The results of new research will help the judicial system to develop policies to reduce recidivism, and also help to reduce the costs associated with recidivism. There is still a need for closer interaction and cooperation between lawyers, psychologists,

psychiatrists, politicians, and researchers in order to accomplish their common goals of improving risk management policies and treatment regimens for juvenile offenders.

The next chapter discusses the methodology of the study, describing how the relationships between the variables will be explored and how the research questions will be answered using a correlational research design.

Chapter 3: Research Method

Introduction

The primary purpose of this quantitative study was to examine the juvenile offender risk factors associated with recidivism. The risk factors included age at the referral date, gender, race, size of family, guardian involvement, offense type, and whether or not the juvenile participated in or completed a diversion program. The research question that guided this study, with its associated null hypothesis, was underpinned by social learning theory.

Research Design and Rationale

The research design was defined as descriptive, correlational, and factorial**.** The descriptive design described the essential characteristics of the population of juvenile offenders being studied, whilst the correlational design referred to the analysis of the statistical associations between multiple variables (Fraenkel & Wallen, 2010). The factorial research design referred to the investigation of various combinations of the levels of each independent or predictor variable in order to determine how each variable was statistically associated with a dependent or outcome variable (Montgomery, 2009). The variables extracted from the database, which were analyzed using binary logistic regression, are defined in Table 1.

Table 1

Descriptions of Variables

Variable	Description
Age (at the referral date)	10 to 16 years
Gender	Male or female
Race	Large urban juvenile probation department uses four race categories as defined by U.S. Census: Black/African American Hispanic/Latino White/Caucasian Other
Size of family	1 to 10 family members
In-home living situation	Descriptive (e.g., lives with mother, father, grandmother; shared custody, etc.), as described by the codes in Appendix B
Guardian involvement with youth	None, some, or intense, as indicated by probation officer observation
Type of offense	Misdemeanor A Misdemeanor B Felony
Program type	90-day diversion program (DP90) 180-day diversion program (DP180)
Participated in diversion program	Yes or no
Completed diversion program	Yes or no
Recidivism	Yes or no (referral within 1 year for a more or similarly severe illegal/unlawful act)

The demographic factors relating to each juvenile offender were age (at the referral date), gender, and race. The social factors relating to each juvenile offender were size of family, in-home living situation, guardian involvement, and type of offense. The variables associated with the juvenile offenders' diversion programs were the type of program, participation in the program, and completion of the program. The outcome variable was recidivism, defined as the referral of the juvenile offender within 1 year for a more or similarly severe illegal/unlawful act.

A quantitative methodology was selected because of its appropriateness and the need to explain a phenomenon using variables (i.e., numerical data that do not remain constant) analyzed by descriptive and inferential statistics in order to address the stated research questions and test the predefined hypotheses. The research design was defined as descriptive, correlational, and factorial because this design facilitated the examination of the statistical relationships among multiple variables, without any attempt to manipulate the characteristics of the participants or control the values of the variables (Fraenkel & Wallen, 2010). This research design allowed for the testing of the hypotheses. For practical, logistical, and ethical reasons, it was not possible for me to conduct an experimental design involving the assignment of the juvenile offenders into groups and/or altering the juvenile risk factors. A correlational and factorial design was justified because this design is commonly applied by researchers to examine the risk factors associated with a specified outcome based on the inferential statistical analysis of archival data stored in a database. Examples of similar designs in the literature include analysis of the factors associated with the risk of disease in epidemiological research (Woolhouse, 2011) and the

factors associated with the risk of recidivism in criminological research (Calley, 2012; Case & Haines, 2009; Dadashazar, 2017).

Research Questions and Hypotheses

The research questions and associated null hypotheses that guided this study were as follows:

1. What are the demographic differences between juveniles in the 90-day diversion program (DP90) and the 180-day diversion program (DP180)?

   Ho1: There are no demographic differences between juveniles chosen for the DP90 and those chosen for the DP180.

2. What are the demographic differences in diversion program completion?

   Ho2: There are no demographic differences between juveniles by completion for the DP90 or DP180.

3. What is the difference in re-referrals for a new offense among the five groups (completed DP90; completed DP180; dropped out of DP90; dropped out of DP180; rejected)?

   $H_0$3: There are no differences in re-referrals for a new offense among the five groups.

Methodology

Population

The target population for this study consisted of male and female juvenile offenders between the ages of 10 and 16 years who were adjudicated between January 1, 2013 and December 31, 2015 within a large urban juvenile probation department in the southern United States. The total number of cases in the database was N = 4,565. The total number

of juvenile offenders who participated in and completed a diversion program was N = 3,745.

Sampling and Sampling Procedures

The minimum sample size (i.e., number of juvenile offenders) of the sample was estimated by power analysis. To avoid Type II errors (i.e., not rejecting the null hypothesis by chance when, in fact, the null hypothesis should be rejected), a substantial sample size was required. It was difficult to perform a power analysis using G*Power software (Faul, Erdfelder, Lang, & Buchner, 2007) because most of the input values were unknown. An approximate estimate of the minimum sample size could be computed by power analysis. Given the minimum odds ratio to indicate a meaningful effect = 1.5 (Rosenthal, 1996) and the probability of recidivism = .15 (i.e., 15% of the juvenile offenders were re-referred); a conventional statistical significance level with two tails ($\alpha = .05$); and an adequate level of statistical power ($1 - \beta = .8$), the minimum required sample size for binary logistic regression was N = 378 (see Appendix C). The sample size used in this study was in excess of the minimum sample size requirement computed by power analysis.

Procedures for Recruitment, Participation, and Data Collection

Because the data were archival, I was not required to obtain consent or assent from the participants or their parents. I did not interact personally with any of the juvenile offenders who participated in this study, nor with any of the staff associated with the large urban juvenile probation department that provided the archival data. The data collected for this research were collected with the informed consent of the large urban juvenile probation department, which was the official gatekeeper of the confidential records for these offenders (see Appendix A, Letter of Cooperation). The data were

transcribed into the data editor of IBM SPSS vs. 24.0 software and saved in an SPSS data file to facilitate the statistical analysis.

I contacted the research manager and expressed my interest in using the dataset from January 1, 2013 to December 31, 2015 for my study. In order to gain access, I had to request written permission to access the datasets by following several procedures: completing/signing a research guidelines document, completing/signing a research data confidentiality and management protocol agreement, submitting a proposal, obtaining verifiable approval from my Institutional Review Board (IRB), and presenting a copy of my curriculum vitae. After I had complied with the department's requirements and provided information relevant to the study, the research review committee provided a written permission letter (see Appendix A) approving the data to be used.

Instrumentation and Operationalization of Constructs

No instruments or constructs were developed or modified. Table 2 defines all the variables provided by the juvenile probation department documentation containing N = 4,565 archival records (Brooks, 2013, 2014, 2015).

Data Analysis Plan

All analyses were computed with IBM SPSS vs. 24.0. A descriptive analysis was conducted using each category listed in Table 1 to summarize the demographic and social factors, the program characteristics, and the recidivism of the juvenile offenders. Inferential statistical analysis was conducted using the variables defined in Table 2.

Table 2

Variables Used in Statistical Analysis

Variable	Level	Description	Code
Recidivism	Dichotomous	No	0
		Yes	1
Type of diversion program	Ordinal	DP90	1
		DP180	2
Participated in diversion program	Dichotomous	No	0
		Yes	1
Completed diversion program	Dichotomous	No	0
		Yes	1
Gender	Dichotomous	Female	0
		Male	1
Age (Years)	Ordinal	10-14	1
		15-17	2
Race	Dichotomous	Black	1
		Not Black	0
	Dichotomous	Latino	1
		Not Latino	0
	Dichotomous	White	1
		Not White	0
Family size	Ordinal	Small (1 or 2)	1
		Large (3 to 10)	2
Mother is primary guardian	Dichotomous	No	0
		Yes	1
Father is primary guardian	Dichotomous	No	0
		Yes	1
High guardian involvement		No	0
		Yes	1
Offense Category	Ordinal	Misdemeanor B	1
		Misdemeanor A	2
		Felony	3

The dichotomous categories were coded in binary format with either 1 or 0. The ordinal categories were coded with 1, 2, or 3, representing the rank of each category, defined in a hierarchical numerical order. Pearson's chi-square tests were used to identify significant *($p < .05$)* associations between the frequencies of pairs of categorical variables organized into cross-tabulations. Because the *p*-value of Pearson's chi-square test is mainly a function of the sample size and does not in any way measure the strength or meaningfulness of the associations between categorical variables, Cramer's *V*, which factors out the sample size, was computed to indicate the effect size (Agresti, 2013). Young (2009) argued that chi-square tests are "to statistics what cupping, bloodletting and leeches to medicine: of historical interest, on rare occasions still useful, but largely superseded by superior methods" (p. 142).

Binary logistic regression analysis was the main statistical method used to test the hypotheses in order to predict the likelihood of a dichotomous dependent variable (coded as 1 or 0) using multiple independent variables as the predictors (Hosmer & Lemeshow, 2000). The binary logistic regression models were defined by the following equation:

$$\ln \pi/(1-\pi) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + ... + \beta_k X_k$$

Where: $\ln \pi/(1-\pi)$ is the logit function or log odds of the dependent variable (the outcome that the researcher wanted to predict); β_0 is a constant or baseline value; and β_1, $\beta_2 ... \beta_k$ are the logistic regression (β) coefficients for k predictor (X) variables. The dependent variable was dichotomous, representing two possible outcomes, coded as 1 (for a positive outcome) or 0 (the reference value). One or more categorical (ordinal or nominal) factors were used to predict the log odds of the dependent variable. The

characteristics of each factor were coded numerically with integers to construct the dummy variables defined in Table 3.

Each model was constructed to predict the log odds of the highest coded outcome of the dependent variable using an iterative procedure called the *maximum likelihood method,* which cycled through multiple repetitions to find the best fit to the data. The model was an overall good fit if $p < .05$ for the Omnibus test statistic and if $p > .05$ for the Hosmer and Lemeshow test statistic. The regression coefficient for a predictor variable was not significantly different from zero if $p < .05$ for the Wald statistic. The odds ratio ($OR = e^{\beta}$) for each X variable was the effect size, indicating the factor by which the log odds of the outcome would change for a one-unit change in X. The *OR* values were interpreted to compare the relative effects of each predictor variable on the outcome. If $OR = 1.0$, then the predictor variable had no effect. If $OR > 1.0$, then the predictor variable increased the log odds. If $OR < 1.0$, then the predictor variable decreased the log odds. If the 95% confidence intervals for the *OR* did not include 1.0, then the *OR* was significantly different from 1.0 at $p < .05$. If the 95% confidence intervals for the *OR* did include 1.0, then the *OR* was not significantly different from 1.0 at $p < .05$. If the *OR* for each predictor variable in the model was significantly different from 1.0, then the stated null hypothesis was rejected. The interpretation of the magnitude of the *OR* as an effect size in the context of research in applied psychology and social science followed the criteria defined by Rosenthal (1996). *OR*s close to 1.0 were assumed to be too small to reflect practical significance. The effect sizes that reflected the practical significance of the results were $OR \leq 0.5$ or ≥ 1.5.

The main assumption of binary logistic regression is that the predictor variables are not multicollinear (i.e., they should not be strongly correlated with each other). Multicollinearity was tested using a matrix of Spearman's rank correlation coefficients (r_s) between each pair of predictor variables. If r_s was 0.8 or above, then the assumption of no multicollinearity was violated, and the statistical inferences of the binary logistic regression analysis could be compromised (Yoo, Mayberry, Sejong, Singh, He, & Lillard, 2014).

Threats to Validity

External Validity

The findings of this study may not be representative of juvenile offenders in the United States as a whole, because it was not known how comparable the juvenile offender population was to those in other parts of the country. Therefore, broader applications of external validity of the conclusions may be limited, implying that they may not necessarily be generalizable to all juvenile offenders (Stangor, 2015).

Internal Validity

The major threat to the internal validity of correlational and factorial studies using multivariate statistical analysis is that extraneous variables (i.e., those that were not measured or controlled) may alternatively explain the relationships identified by inferential statistical analysis (Hair, Anderson, Babin, Tatman, & Black, 2010). For example, even if two variables (such as juvenile offender recidivism and participation in a diversion program) are found to be related, as indicated by a statistically significant test statistic, then it is still possible that other variables that were not measured or controlled (e.g., psychopathologies) confounded the relationship. In an experimental design, the

researcher can control threats to internal validity by randomly assigning participants to groups, or by pair-matching the characteristics of the participants in one group with those in another group (Fraenkel & Wallen, 2010). In a correlational design, in which the researcher is not able to manipulate the variables or the groups of participants, the effects of confounding and differential subject characteristics remain and cannot be controlled. The results of these findings are interpreted with caution, in chapter 5.

Statistical Conclusion Validity

The major threat to the conclusion validity of the statistical inferences was Type II errors. If the sample size was too small then the results of the statistical tests could be declared to be not significant, when, in fact, they should be significant (Field, 2013). The results of a power analysis indicate that at least 378 participants were required. The sampling frame of N = 4,656 juvenile offenders committed for treatment between January 1, 2013 and December 31, 2015 within a large urban juvenile probation department was more than sufficient to provide sufficient statistical power and minimize threats to statistical conclusion validity.

Statistical conclusion validity could also be compromised by the elevation of Type I errors when multiple statistical tests are performed on one set of data. A Type I error occurs if the results of statistical tests are declared to be significant, when, in fact, they should not be significant (Field, 2013). The Bonferroni correction may be applied to eliminate Type I errors by reducing the significance level from .05 to .05/k where k = the number of tests (Abdi, 2007). The Bonferroni correction was not applied in this study because the lowering of the significance level below .05 creates too many Type II errors and provides unreliable results (O'Keefe, 2002; Nakagawa, 2004; Perneger, 2008).

Ethical Procedures

I obtained approval from the Institutional Review Board (IRB) of Walden University prior to conducting this study. Upon IRB approval, I received a spreadsheet containing nonidentifying data originally collected by the large urban juvenile probation department. The data was collected with the informed consent of the large urban juvenile probation department, which was the official gatekeeper of the confidential records for these offenders (see Appendix A, Letter of Cooperation). In conducting this study, I complied with the ethical principles of psychologists and the code of conduct of the American Psychological Association.

Because the data was archival, I was not required to obtain consent or assent from the participants or their parents. The rights of the participants to confidentiality and anonymity was, however, respected. No data that identified individual participants was used. Only the researcher and dissertation committee had access to the data. The data was stored password protected files on my computer, and all printed documents were stored in locked files. These files will be deleted in five years.

Summary

A descriptive, correlational, and factorial research design was justified for me to conduct a descriptive inferential statistical analysis of the archival data obtained from a large urban juvenile probation department, underpinned by social learning theory. A large random sample of records referring to juvenile offenders of ages 10 to 16 years referred between January 1, 2013 and December 31, 2015 (N = 4,656) was drawn from the database. The minimum sample size estimated by power analysis to provide meaningful results using binary logistic regression was N = 378. The chosen method of statistical

analysis included Pearson's chi square tests and binary logistic regression to test the three hypotheses aligned to the research questions.

Threats to external and internal validity were considered. Ethical issues and procedures were described. The following chapter presents the results of the study, providing the statistical evidence to address the stated research questions and test the associated hypotheses.

Chapter 4: Results

Introduction

The overall purpose of this quantitative study was to identify the risk factors associated with recidivism in juvenile offenders, and to determine which of these risk factors are associated with participation in diversion programs. Specifically, this research examined the extent to which the juvenile offenders' gender, age (at the referral date), race, size of family, level of guardian involvement, and types of offense were associated with participation in a diversion program and recidivism.

This chapter describes the collection of the data to summarize the characteristics of the juvenile offenders, and it addresses the following research questions and tests the associated null hypotheses:

1. What are the demographic differences between juveniles in the 90-day diversion program (DP90) and the 180-day diversion program (DP180)?

   Ho1: There are no demographic differences between juveniles chosen for the DP90 and those chosen for the DP180.

2. What are the demographic differences in diversion program completion?

   Ho2: There are no demographic differences between juveniles by completion for the DP90 or DP180.

3. What is the difference in re-referrals for a new offense among the five groups (completed DP90; completed DP180; dropped out of DP90; dropped out of DP180; rejected)?

   $H_0$3: There are no differences in re-referrals for a new offense among the five groups.

Data Collection

Archival data for 4,656 juvenile cases were extracted from a database managed by the large urban juvenile probation department and included all of the variables defined in Chapter 3 (see Table 2): demographic characteristics, family relationships, guardian involvement, types of offenses, participation in diversion programs, and recidivism. There were no discrepancies between the plan described in Chapter 3 and the data that were provided.

Description of the Sample

The cases in the database included juveniles who were arrested between January 1, 2013 and December 31, 2015. Table 3 summarizes their demographic characteristics.

Table 3

Demographic Characteristics of the Juvenile Offenders (N = 4,656)

Variable	Category	Frequency	%
Age (years)	10	21	0.5
	11	83	1.8
	12	309	6.6
	13	629	13.5
	14	899	19.3
	15	1,212	26.0
	16	1,493	32.1
	17	10	0.2
Gender	Male	3,079	66.1
	Female	1,577	33.9
Race (categories defined by U.S. Census)	Black	1,421	30.5
	Latino	1,729	37.1
	White	1,438	30.9
	Others	68	1.5

The median age was 15 years, with a range of 10 to 17 years. The mean and standard deviation of age were not applicable because they assume normality, but the age distribution of the offenders deviated strongly from normality (Shapiro-Wilk test statistic =.878, $p < .001$). Therefore, the median was the most applicable statistic to summarize age (Field, 2013). The majority of the offenders (n = 3,079, 66.1%) were male. The most frequent racial group was Latino (n = 1,729, 37.1%), followed in order of frequency by White (n = 1,438, 30.9%); Black (n = 1,421, 30.5%) and other races (n = 68, 1.5%).

The family relationships were identified by the number of family members living at the home of the offender (e.g., 1 = one family member, 2 = two family members, 3 = three family members, up to 10 = 10 family members) and the primary and secondary guardians (using the codes in Appendix B). Table 4 indicates that most of the juvenile offenders (n = 2,568, 55.2%) had only one family member living at home, and the primary guardian was usually the biological mother (n = 3,717, 79.9%). The second guardian was missing for most cases (n = 3,470, 74.5%). For the remainder of the cases (n = 880, 18.9%), the biological father was the second guardian.

Table 4

Family Relationships of the Juvenile Offenders (N = 4,656)

Variable	Category	Frequency	%
Family size (number of family members)	1	2,568	55.2
	2	1,495	32.1
	3	234	5.0
	4	171	3.7
	5	102	2.2
	6	86	1.8
	7 or more	45	0.94
Primary guardian	Biological mother	3,718	79.9
	Biological father	537	11.5
	GG	111	2.4
	Other	290	6.2
Secondary guardian	Missing	3,470	74.5
	Biological father	880	18.9
	Stepfather	149	3.2
	Biological mother	62	1.3
	Other	95	2.1

Table 5 presents the levels of juvenile's guardian involvement, classified by the agency as high, low, none, or some. The majority of the juvenile offenders experienced high levels of primary guardian involvement (*n* = 3,597, 77.3%). No data were available to measure the involvement of the secondary guardians of most of the juveniles, because of most cases did not identify one (*n* = 3,470, 74.5%). Among the juveniles for whom data on the secondary guardian were available, the majority experienced high guardian involvement (*n* = 870, 18.7%).

Table 5

Guardian Involvement of the Juvenile Offenders (N = 4,656)

Variable	Category	Frequency	%
Primary guardian	High	3,597	77.3
	Low	1,039	22.3
	None	14	0.3
	Some	6	0.1
Secondary guardian	No data	3,470	74.5
	High	870	18.7
	Low	313	6.7
	Some	3	0.1

Table 6 presents the frequencies of offenders classified by the two categories of offenses. For Option 1, the most frequent categories were property/misdemeanor (*n* = 2,226, 47.8%) and illegal substance *(n* = 2,107, 45.3%). In Option 2, Drugs/Misdemeanor AB was most frequent (*n* = 2,093, 45%), and the second most frequent was Theft/Misdemeanor AB (*n* = 2,093, 45%). The most frequent general offense category was Misdemeanor B (*n* = 2,961, 63.6%) followed by Misdemeanor A (*n* = 1,670, 35.9%). Felony was the most infrequent offense category (*n* = 25, 0.5%).

Table 6

Types of Offenses of the Juvenile Offenders (N = 4,656)

Variable	Category	Frequency	%
Offense categories Option 1	Property/misdemeanor	2,226	47.8
	Illegal substance	2,107	45.3
	All others	313	6.7
	Property/felony	8	0.2
	Person/misdemeanor	2	0.04
Offense categories Option 2	Drugs/Misdemeanor AB	2,093	45.0
	Theft/Misdemeanor AB	1,802	38.7
	Trespass/Misdemeanor AB	301	6.5
	Evade/Resisting Arrest/Misdemeanor AB	223	4.8
	Mischief/Misdemeanor AB	123	2.6
	Other/Misdemeanor AB	87	1.9
	Drugs/felony	14	0.3
	Theft/felony	6	0.1
	Assault/Misdemeanor AB	2	0.04
	Other/felony	2	0.04
	Auto theft	1	0.02
	Burglary	1	0.02
	Evade/resisting arrest felony	1	0.02
General categories	Misdemeanor B	2,961	63.6
	Misdemeanor A	1,670	35.9
	Felony	25	0.5

Table 7 shows that among 4,656 juvenile offenders, the majority participated in and completed a DP90 or DP180 diversion program (*n* = 3,745, 86.8%), and the remaining cases either (a) participated in but did not complete a diversion program (*n* = 568, 12.2%) or (b) did not participate in a diversion program (*n* = 343, 7.4%).

Table 7

Participation of Offenders in DP90 and DP180 (N = 4,656)

Participation in diversion program (DP90 and DP180)	*N*	%

Participated in and completed a diversion program	3,745	86.8
Participated in but did not complete a diversion program	568	12.2
Did not participate	343	7.4
Total	4,656	100

The juvenile offenders were classified into two groups: one group whose members participated in a diversion program (n = 4,313, 92.6%) and another group whose members did not participate in a diversion program (n = 343, 7.4%). Table 8 presents the results of binary logistic regression to determine the likelihood that four categorical independent variables (gender, age, offense type, and recidivism) predicted the likelihood of participation in a diversion program.

Table 8

Logistic Regression to Predict Participation in a Diversion Program

Independent variables	*p*	*OR*	95% CI	
			Lower	Upper
Gender (1 = male)	.850	1.02	.0.80	1.31
Age group (1 = 10 to 14 years)	.366	0.90	0.72	1.13
Offense (1 = Misdemeanor B)	.082	1.23	0.97	1.56
Recidivism (1 = yes)	< .001*	0.43	0.33	0.56

* Statistically significant ($p < .001$).

The results indicated that gender, age group, and offense category were not significantly associated with participation in a diversion program ($p > .05$). The odds ratios for gender, age group, and offense category (OR = 0.90 to 1.23) were not significantly different from 1.0, as indicated by confidence intervals that captured 1.0 (95% CI = 0.72 to 1.56). Recidivism was the only independent variable that was significantly associated with participation in a diversion program ($p < .001$). The odds ratio (OR = 0.43) indicated that, on average, the likelihood of a juvenile who participated in a diversion program

reoffending within 1 year (coded by Recidivism = 1) was 0.43 times less than the likelihood of a juvenile who did not participate in the program reoffending within 1 year (coded by Recidivism = 0). The *OR* for recidivism was not significantly different from 1.0, as indicated by confidence intervals that did not capture 1.0 (95% CI = 0.33, 0.56).

Table 9 compares the participation of the juvenile offenders in the two diversion programs. The highest frequency of offenders (*n* = 2,952, 63.4%) participated in the DP90. The remainder (*n* = 1,704, 36.6%) participated in the DP180. Some of the juveniles did not participate (*n* = 125, 2.7%), or were rejected (*n* = 218, 4.7%) or dropped out (*n* = 412, 4.8% in DP180; *n* = 156, 3.4% in DP90). Among the 2,952 cases that participated in the DP90, the majority (*n* = 2,644, 89.6%) completed the program. Among the 1,704 cases that participated in the DP180, a smaller proportion (*n* = 1,101, 64.6%) completed the program.

Table 9

Comparison of Offenders in DP90 and DP180 (N = 4,656)

Variable	Category	Frequency	%
Decision	90-day diversion program (DP90)	2,952	63.4
	180-day diversion program (DP180)	1,704	36.6
Participation	Completed DP90	2,644	56.8
	Completed DP180	1,101	23.6
	Dropped out DP180	412	8.8
	Rejected	218	4.7
	Dropped out DP90	156	3.4
	Did not participate	125	2.7

Table 10 presents the frequencies of recidivism. Most of the offenders *(n* = 3,943, 84.7%) were not rearrested for more severe or similarly severe illegal/unlawful acts within 1 year. The rate of recidivism among *N* = 4,656 juveniles managed by the large urban juvenile probation department was 15.3% per year.

Table 10

Recidivism of Juvenile Offenders (N = 4,656)

Variable	Category	Frequency	%
Recidivism[a]	No	3,943	84.7
	Yes	713	15.3

[a]Within 1 year, rearrested for more severe or similarly severe illegal/unlawful act.

Table 11 presents the cross tabulation of the frequencies of the juvenile offenders, classified by each specified program completion category vs. recidivism (i.e., whether or not they were referred for a new offense within 1 year). The association between

recidivism and the groups classified by the outcomes of the diversion program was statistically significant (Pearson's χ^2 (5) = 750.71, $p < .001$).

Table 11

Categories of Program Completion vs. Recidivism (N = 4,656)

Category	No recidivism (n = 3,943)		Recidivism (n = 713)	
	Frequency	% within no recidivism	Frequency	% within recidivism
Completed DP90	2,453	62.2%	191	26.8%
Completed DP180	963	24.4%	138	19.4%
Dropped out DP90	85	2.2%	71	10.0%
Dropped out DP180	193	4.9%	219	30.7%
Rejected	167	4.2%	51	7.2%
Did not participate	82	2.1%	43	6.0%

The proportion of juvenile offenders who reoffended (n = 713, 15.3%) was small, compared to the proportion with no recidivism (n = 3,943, 84.7%). Nearly two thirds of the juvenile offenders with no recidivism (n = 2,453, 62.2%) completed the DP90 program. About one quarter (n = 963, 24.4%) of the offenders with no recidivism completed the DP180 program. Among the offenders who dropped out, the highest proportion (n = 219, 30.7%) dropped out of the DP180 program.

Results

Pearson's chi-square tests and binary logistic regression were conducted as described in Chapter 3, using the coded variables listed in Table 3. The statistical assumptions were that the sample size was large enough to detect statistically significant associations between the variables (indicated by power analysis) and that there was no multicollinearity between the independent variables (indicated by correlation analysis).

Differences Between Juvenile Offenders Chosen for DP90 and DP180

This section addresses the first research question: What are the demographic differences between juveniles in the 90 Day Diversion Program (DP90) and the 180 Day Diversion Program (DP180). Table 12 presents the cross-tabulation of the frequencies (counts and %ages) of the juvenile offenders within the specified demographic categories vs. the two types of diversion program. In order to provide large sample sizes to provide sufficient statistical power to conduct inferential statistics, age was collapsed by a median split into younger (10 to 14 years) vs. older (15 to 17 years), and the family size was collapsed by a median split into smaller (1 or 2 family members) vs. larger (3 to 10 family members). Table 13 presents the results of Pearson's Chi-Square (χ^2) tests to examine the degree of association between the categorical characteristics of the juvenile offenders vs. the type of diversion program.

Table 12

Characteristics of Juvenile Offenders vs. Type of Diversion Program (N = 4,656)

Variable	Category	DP90 program (n = 2,952)		DP180 program (n = 1,704)	
		Frequency	% within program	Frequency	% within program
Gender	Female	1,087	36.8%	490	28.8%
	Male	1,865	63.2%	1,214	71.2%
Age (years)	10 to 14	1,253	42.4%	688	40.4%
	15 to 17	1,699	57.6%	1,016	59.6%
Race	Black	845	28.6%	576	33.8%
	Latino	1,058	35.8%	671	39.4%
	White	992	33.6%	446	26.2%
	Other	57	1.9%	11	0.6%
Family size	Small (1 or 2)	2,638	89.4%	1,425	83.6%
	Large (3 to 10)	314	10.6%	279	16.4%
Mother is primary guardian	No	569	19.3%	369	21.7%
	Yes	2,383	80.7%	1,335	78.3%
Father is primary guardian	No	2,590	87.7%	1,529	89.7%
	Yes	362	12.3%	175	10.3%
High guardian involvement	No	623	21.1%	436	25.6%
	Yes	2,329	78.9%	1,268	74.4%
Offense category	Misdemeanor A	972	32.9%	698	41.0%
	Misdemeanor B	1,963	66.5%	998	58.6%
	Felony	17	0.6%	8	0.5%

Table 13

Associations Between Characteristics of Juvenile Offenders vs. Type of Diversion Program

Variable	χ^2	*df*	*p*	Effect size (Cramer's *V*)
Gender	31.39	1	< .001*	.081
Age	1.91	1	.168	.077
Race	44.67	3	< .001*	.098
Family size	31.98	1	< .001*	.088
Mother is primary guardian	3.80	1	.051	.029
Father is primary guardian	4.20	1	.040*	.030
High guardian involvement	12.35	1	< .001*	.052
Offense category	30.36	1	< .001*	.080

* Significant association ($p < .05$).

There was a significant association between gender and type of program ($p < .001$; Cramer's V = .081). The DP180 program contained a higher proportion of male offenders (n = 1,215, 71.2%) than the DP90 program (n = 1,865, 63.2%). There was no significant association between age and type of program ($p = .168$). Latino was the most frequent racial group among the juvenile offenders (n = 1,729, 37.1%) followed in order of frequency by White (n = 1,438, 30.9%); Black (n = 1,421, 30.5%); and other races (n = 68, 1.5%). There was a significant association between race and the type of program (p < .001; Cramer's V = .098). The most frequent racial group in the DP180 program was Latino (n = 671, 39.4%). The most frequent racial group in the DP90 program was also Latino (n = 1,058, 35.8%). The proportion of Black offenders was higher in the DP180 program (n =

576, 33.8%) than in the DP90 program (*n* = 845, 28.6%). There was a significant association between family size and the type of program ($p < .001$; Cramer's V = .088). The most frequent primary guardian was the offender's mother within both the DP180 program (*n* = 1,335, 78.3%) and the DP90 program (*n* = 2,383, 80.7%). There was no significant association between the mother as the primary guardian and the type of program ($p = .051$). The primary guardian was the offender's father among a smaller proportion of the offenders in the DP180 program (*n* = 175, 10.3%) compared to the DP90 program *(n* = 362, 12.3%). There was a significant association between the father as the primary guardian and the type of program ($p = .040$; Cramer's V = .030).

Primary guardian involvement was initially classified using categories of high, low, none, or some (see Table 5); however, for statistical purposes the nominal categories of low, none, or some were collapsed into one category. The proportion of offenders in the DP180 program who received high primary guardian involvement (1,268, 74.4%) was less than in the DP90 program (*n* = 2,329, 78.9%). There was a significant association between the levels of primary guardian involvement and the type of program ($p = .040$; Cramer's V = .052). The data provided on the family members other than the primary guardian (see Table 4) were incomplete (over 75% were missing values). Therefore, data on the family members other than the primary guardian was not used to test the hypotheses because the sample size was too small.

A higher proportion of the offenders in the DP90 program (*n* = 1,963, 66.5%) were arrested for Misdemeanor B compared to the offenders in the DP180 program (*n* = 998, 58.6%). A smaller proportion of the offenders in the DP90 program (*n* = 972, 32.9%) were arrested for Misdemeanor A compared to the offenders in the DP180 program (n = 698,

41.0%). The DP90 and DP180 programs included similar proportions (*n* = 17, 0.6% and n = 8, 0.5% respectively) of offenders arrested for Felony. There was a significant association between the offense categories and the type of diversion program ($p < .001$).

The codes used to define each predictor variable for logistic regression analysis are summarized in Table 14. The nominal variables were coded by 0 = No, Yes = 1. Race was coded using three out of the four racial categories, because the number of categories in a nominal level variable with more than two categories must be k -1, where k = the total number of categories. The ordinal variables (age, family size, and offense category) were ranked by coding from 1 to 3, where 1 = the lowest rank and 2 or 3 = the highest rank.

Table 14

Codes Used to Define Predictor Variables

Predictor variable	Code
Gender	0 = Female, 1 = Male
Age	1 = Younger (10 to 14 years); 2 = Older (15 to 17 years)
Black	0 = No, 1 = Yes
Latino	0 = No, 1 = Yes
White	0 = No, 1 = Yes
Family size	1 = Smaller (1 or 2); 2 = Larger (3 to 10)
Guardian 1 mother	0 = No, 1 = Yes
Guardian 1 father	0 = No, 1 = Yes
High guardian involvement	0 = No, 1 = Yes
Offense category	1 = Misdemeanor B; 2 = Misdemeanor A, 3 = Felony

Table 15 presents a matrix of Spearman's rank correlation coefficients (r_s) between the predictor variables. All of the correlation coefficients (r_s = .000 to -.509) were < .8 indicating no multicollinearity.

Table 15

Matrix of Correlation Coefficients to Test for Multicollinearity

Variable	Age	Gender	Black	Latino	White	Family size	Guardian 1 mother	Guardian 1 father	Guardian involvement	Offense category
Age	1									
Gender	-.061	1								
Black	.023	.016	1							
Latino	-.079	.048	-.509	1						
White	.057	-.052	-.443	-.514	1					
Family size	-.030	.007	.105	-.019	-.087	1				
Guardian mother	-.047	.008	-.019	.079	-.054	.009	1			
Guardian father	.045	.001	-.061	-.021	.067	-.029	-.719	1		
Guardian involvement	.035	.009	.022	-.107	.091	-.109	.023	-.013	1	
Offense category	-.121	.152	-.082	.084	.000	.003	.037	.039	-.024	1

Table 16 presents the results of the binary logistic regression analysis to predict the likelihood of a case being in a specific diversion program (DP180 vs. DP90). The binary logistic regression model was a significantly good fit to the data (Omnibus test, $p < .001$; Hosmer & Lemeshow test, $p = .482$). The regression coefficients for all of the predictors were statistically significant, indicated by $p < .05$; and the lower and upper 95% confidence intervals (CI) for the Odds Ratios did not capture 1.0.

Table 16

Logistic Regression to Predict DP90 or DP180

Predictors	*P*	Odds ratio	95% CI	
			Lower	Upper
Black	.001*	3.13	1.62	6.07
Latino	.001*	2.99	1.55	5.79
White	.020*	2.20	1.14	4.26
Family size	< .001*	1.55	1.30	1.85
Gender	< .001*	1.37	1.20	1.57
Offense category	< .001*	1.35	1.19	1.52
Age	.007*	1.19	1.05	1.35
Guardian involvement	.010*	0.83	0.72	0.96
Guardian 1 mother	< .001*	0.60	0.48	0.74
Guardian 1 father	< .001*	0.55	0.42	0.72

Note. Dependent variable: DP90 = 0; DP180 = 1.
* Significant ($p < .05$).

The strongest predictor of being in the DP180 program, indicated by the largest Odds Ratio (*OR*) was Black race. On average, the Black offenders were *OR* = 3.13 times more likely than offenders who were not Black to be chosen for the longer DP180 rather than the shorter DP90 program. A comparison of the *OR*s for the other positive predictors, in decreasing order of magnitude, indicated that the likelihood or odds of an offender being chosen for the DP180 program vs. the DP90 program was greater by (a) *OR* = 2.99 if the offender was Latino vs. not Latino; (b) *OR* = 2.20 if the offender was White vs. not White; and (c) *OR* = 2.20 if the offender was male vs. female; (d) *OR* = 1.55 if the family size was larger vs. smaller; (e) *OR* = 1.37 if the offender was male vs. female; (f) *OR* = 1.35 if the offense category was more severe (e.g., Misdemeanor A vs. Misdemeanor B; Felony vs. Misdemeanor A); and (g) *OR* = 1.19 if the offender was older vs. younger.

Demographic Differences in Diversion Program Completion

This section addresses the second research question: What are the demographic differences in diversion program completion? Table 17 presents the cross tabulation of the frequencies of the juvenile offenders who completed the DP90 and DP180 diversion programs classified by their demographic characteristics.

The proportion of juvenile offenders with one or two family members who completed the DP90 program (*n* = 2,379, 90.0 %) was less than the proportion who completed the DP180 program (*n* = 945, 85.8%). A greater proportion of offenders with a high level of guardian involvement completed the DP90 program (*n* = 2,088, 79.0%) than the DP180 program (*n* = 790, 71.8%). A greater proportion of offenders arrested for Misdemeanor B completed the DP90 program (*n* = 1,758, 66.5%) than the DP180 program (*n* = 613, 55.7%). A smaller proportion of offenders arrested for Misdemeanor A completed the DP90 program (*n* = 972, 33.0%) than the DP180 program (*n* = 483, 43.9%).

Binary logistic regression analysis was conducted to address the second research question and associated hypothesis. Completion of a diversion program (1 = Yes; 0 = No) was the binary coded dependent variable. The predictor variables were coded as defined in Table 14. The results of the binary logistic regression analysis to predict the likelihood of completing DP90 are presented in Table 18 and Table 19 presents the results of binary logistic regression to predict the likelihood of completing the DP180 program.

Table 17

Offender Characteristics vs. Completion of Diversion Programs (N = 3,745)

Variable	Category	Completed DP90 program (n = 2,644)		DP180 program (n = 1,101)	
		Frequency	% within program	Frequency	% within program
Gender	Female	996	37.7%	332	30.2%
	Male	1,648	62.3%	769	69.8%
Age (years)	10-14	1,120	42.4%	446	40.5%
	15-17	1,524	57.6%	655	59.5%
Race	Black	721	27.3%	322	29.2%
	Latino	951	36.0%	425	38.6%
	White	916	19.7%	343	31.2%
	Other	56	2.1%	11	1.0%
Family size	Small (1 or 2)	2,379	90.0%	945	85.8%
	Large (3 to 10)	265	10.0%	156	14.2%
Guardian 1 mother	No	500	18.9%	234	21.3%
	Yes	2,144	81.1%	867	78.7%
Guardian 1 father	No	2,314	87.5%	987	89.6%
	Yes	330	12.5%	114	10.4%
High guardian involvement	No	No	556	21.0%	311
	Yes	Yes	2,088	79.0%	790
Offense category	Misdemeanor B	1,758	66.5%	613	55.7%
	Misdemeanor A	872	33.0%	483	43.9%
	Felony	14	0.5%	5	0.5%

Table 18

Logistic Regression to Predict an Offender Completing DP90

Predictor	*P*	*OR*	95% CI	
			Lower	Upper
Guardian 1 father	< .001*	1.99	1.52	2.61
Guardian 1 mother	< .001*	1.84	1.49	2.28
High guardian involvement	.026*	1.48	1.32	1.56
Age	.019*	0.87	0.77	0.98
Offense category	< .001*	0.78	0.69	0.88
Gender	< .001*	0.70	0.62	0.80
Family size	< .001*	0.61	0.51	0.73
White	.005*	0.40	0.21	0.76
Latino	< .001*	0.29	0.15	0.54
Black	< .001*	0.25	0.13	0.47

Note. Dependent variable: Not completed = 0; Completed = 1.
* Significant predictor ($p < .05$).

Table 19

Logistic Regression to Predict an Offender Completing DP180

Predictor	*P*	*OR*	95% CI	
			Lower	Upper
Guardian 1 father	.003*	1.58	1.17	2.14
White	.197	1.55	0.80	3.00
Latino	.217	1.52	0.78	2.94
Offense category	<.001*	1.48	1.29	1.69
High guardian involvement	<.001*	1.46	1.25	1.71
Guardian 1 mother	.003*	1.42	1.12	1.78
Black	.323	1.40	0.72	2.72
Gender	.022*	1.19	1.03	1.38
Age	.055	1.15	1.00	1.32
Family size	.238	1.13	0.92	1.38

Note. Dependent variable: Not completed = 0; Completed = 1.
Significant predictor ($p < .05$).

The data were a good fit to the model in Table 18 (Omnibus test, $p < .001$; Hosmer & Lemeshow test, $p = .186$); and the model in Table 19 (Omnibus test, $p < .001$; Hosmer & Lemeshow test, $p = .060$). The regression coefficients for all of the variables in Table 19 to predict completion of the DP90 program were statistically significant, indicated by $p < .05$ and the lower and upper 95% CI for the Odds Ratios did not capture 1.0.

The strongest predictor of completion of the DP90 program, indicated by the largest OR was Guardian 1 Father (i.e., the father was the primary guardian). On average, the offenders whose father was the primary guardian (vs. another family member) were *OR* = 1.99 times more likely than offenders without a father as a primary guardian to complete the DP90 program. A comparison of the *OR*s for the other positive predictors, in decreasing order of magnitude, indicated that the likelihood of an offender completing the DP90 was greater by (a) *OR* = 1.94 if the primary guardian was the mother (vs. another family member); (b) *OR* = 1.48 if there was a high level of guardian involvement. A comparison of the *OR*s for the negative predictors, in decreasing order of magnitude indicated that the likelihood or odds of an offender completing the DP90 program vs. was less by (a) *OR* = 0.87 if the offender was older vs. younger; (b) *OR* = 0.78 if the offense category was more serious; (c) *OR* = 0.70 if the gender of the offender was male vs. female; *OR* = 40 if the offender was White; *OR* = 0.29 if the offender was Latino, and *OR* = 0.25 if the offender was Black.

The regression coefficients for five of the variables in Table 19 to predict completion of the DP180 program were statistically significant, indicated by $p < .05$; and the lower and upper 95% confidence CI for the Odds Ratios did not capture 1.0. Race (White, Latino, or Black); Age, and Family Size were not significant predictors.

The strongest predictor of completion of the DP180 program, indicated by the largest Odds Ratio (*OR*) was Guardian 1 Father (i.e., the father was the primary guardian). On average, the offenders whose father was the primary guardian (vs. another family member) were *OR* = 1.58 times more likely than offenders without a father as a primary guardian to complete the DP180 program. A comparison of the *OR*s for the other positive predictors, in decreasing order of magnitude, indicated that the likelihood of an offender completing the DP90 was greater by (a) *OR* = 1.48 if the offense category was more serious; (b) *OR* = 1.46 if there was a high level of guardian involvement; *OR* = 1.42 if the primary guardian was the mother (vs. another family member); and *OR* = 1.19 if the offender was male vs. female.

Differences in Recidivism Among Five Groups

This section addresses the third research question: What is the difference in re-referrals for a new offense amongst the five groups? Completed Recidivism (1 = Yes; 0 = No) was the binary coded dependent variable. The five nominal level predictor variables were coded in binary format as required by logistic regression analysis as follows: Completed DP90 = 1; Did not complete DP90 = 0; Completed DP180 = 1; Did not complete DP180 = 0; Dropped out DP90 = 1; Did not drop out DP90 = 0; Dropped out DP180 = 1; Did not drop out DP180 = 0; Rejected = 1; Not rejected.

Table 20 presents a matrix of Spearman's rank correlation coefficients to demonstrate that the predictor variables were not multicollinear ($r_s < .8$) therefore the results of the binary logistic regression would not be compromised by multicollinearity.

Table 20

Matrix of Correlation Coefficients to Test for Multicollinearity

Variable	Completed DP90	Completed DP180	Dropped out DP90	Dropped out DP180	Rejected
Completed DP90	1				
Completed DP180	-.638	1			
Dropped out DP90	-.213	-.104	1		
Dropped out DP180	-.357	-.173	-.058	1	
Rejected	-.254	-.123	-.041	-.069	1

Table 21 presents the results of the binary logistic regression analysis to predict recidivism using five program completion categories as the predictor variables.

Table 21

Logistic Regression to Predict Recidivism

Predictor	*P*	Odds ratio	95% CI	
Dropped out DP180	< .001*	2.16	1.43	3.28
Dropped out DP90	.040*	1.59	1.08	2.59
Rejected	.029*	0.58	0.36	0.95
Completed DP180	< .001*	0.27	0.18	0.41
Completed DP90	< .001*	0.15	0.10	0.22

Note. Dependent variable 1 = Recidivism; 0 = No recidivism.
* Significant predictor ($p < .05$).

The binary logistic regression model was a significantly good fit to the data (Omnibus test, $p < .001$; Hosmer & Lemeshow test, $p = 1.000$). All of the predictors of recidivism were significant, indicated by $p < .05$, and Odds Ratios with 95% CI that did not capture 1.0. The strongest predictor of recidivism was Dropped Out DP180. The offenders were OR = 2.16 times more likely to be referred for a new offense within one year if they dropped out of the DP180 program. If the offenders dropped out of the DP90

program, they were *OR* = 1.59 times more likely to be referred for a new offense within one year. The other three regression coefficients were negative, with *OR*s less than 1.0. The likelihood of an offender being referred for a new offense within one year was (a) less by *OR* = 0.58 if the offender was rejected; (b) less by *OR* = 0.27 if the offender completed the DP180 program; and (c) less by *OR* = 0.15 if the offender completed the DP90 program.

Summary

Descriptive and inferential statistical analyses were conducted to identify the risk factors that influence recidivism in juvenile offenders, and to determine which of these risk factors are associated with participation in diversion programs. Specifically, this research examined the extent to which the juvenile offenders' gender, age (at the referral date), race, size of family, level of guardian involvement, and types of offense were associated with participation in a diversion program and recidivism. The archival data were extracted from a database managed by a large urban juvenile probation department. The archival data included the characteristics of N = 4,656 juveniles arrested for misdemeanors or felonies between January 1, 2013 and December 31, 2015.

Sufficient statistical evidence was provided to reject the null hypothesis $H_0 1$ that there would be no demographic differences between the offenders chosen for the DP90 and DP180. Significant ($p < .05$) demographic differences were identified between the juvenile offenders in the 90-day diversion program (DP90) compared with the juvenile offenders in the 180-day (DP180) diversion program. The offenders in the two diversion programs were not equivalent in terms of their demographic characteristics. The greatest differences were associated with the race, gender, and family size of the offenders. In

particular, those offenders who were male and Black with a large family size were more likely to be chosen for the longer DP180 program rather than for the shorter DP90 program.

Sufficient statistical evidence was provided to reject the null hypothesis $H_0 2$ that there would be would no demographic differences between juveniles by completion for the DP90 or DP180. Significant ($p < .05$) differences were identified between the juvenile offenders who completed the 90-day and 180-day diversion programs compared with the juvenile offenders who did complete the programs. The strongest predictor of an offender completing the shorter DP90 program or the longer DP180 program, indicated by the largest Odds Ratios, was of the offender's father as the primary guardian.

Sufficient statistical evidence was also provided to reject the null hypothesis $H_0 3$ that there would be no differences in re-referrals for a new offense amongst the five groups. There were differences in re-referrals for a new offense amongst the five groups (completed DP90; completed DP180; dropped out DP90; dropped out DP180; rejected). The strongest predictor of recidivism was dropping out of the DP180 program. Offenders who did not drop out of the DP90 program were the least likely to be referred for a new offense within one year.

The next chapter presents an interpretation of the findings and their implications in the context of the literature. An analysis related to theoretical framework is presented. The limitations of the study and recommendations for future research are considered. The dissertation ends with a final conclusion.

Chapter 5: Discussion, Conclusions, and Recommendations

Archival data were obtained from an urban county criminal justice database to examine specific risk factors that contribute to juvenile recidivism. The data contained information linked to N = 4,656 juveniles detained for misdemeanor or felony between January 1, 2013 and December 31, 2015. Descriptive and inferential statistical analyses were conducted in order to pinpoint the differences between groups in terms of risk factors and participation in the different diversion programs, and to examine which risk factors predicted participation in diversion programs and recidivism. Specifically, this study examined the degree to which the family relationships, juvenile offenders' gender, age (at the referral date), race, size of family, level of guardian involvement, and types of offense were associated with involvement in a diversion program and postprogram recidivism. The following research questions were addressed:

1. What are the demographic differences between juveniles in the 90-day diversion program (DP90) and the 180-day diversion program (DP180)?
2. What are the demographic differences in diversion program completion?
3. What is the difference in re-referrals for a new offense among the five groups (completed DP90; completed DP180; dropped out of DP90; dropped out of DP180; rejected).

Although originally in Chapter 1, each research question was linked to a null hypothesis, the use of null hypothesis testing based on statistical significance (p-values) was not applicable to interpret the results of this study. Many articles published in the last decade have asserted that the retention or rejection of a null hypothesis using p-values does not provide valid evidence to prove that a null hypothesis is true or false (Filho, Paranos, da

Rocha, Batista, Silva, & Santos, 2013; Gigerenzer & Marewski, 2015; Hurlbert & Lombardi, 2009; Kühberger, Fritz, Lermer, & Scherndl, 2015; Orlitsky, 2012; Sedlmeier, 2009; Szucs & Ioannidis, 2017). Despite their widespread use for over 100 years, *p*-values do not distinguish between important and unimportant results. *P*-values can provide fickle, unreliable, and untrustworthy criteria for the testing of null hypotheses (Nuzzo, 2014; Halsey, Curran-Everett, Vowler, & Drummond, 2015). I complied with the formal statement issued by the American Statistical Association (Wassersein & Lazar, 2016) asserting that *p*-values should not be interpreted to reflect practical significance, implied by the size of an effect, and that scientific conclusions, policy decisions, practical implications, and recommendations for social change should not be based only on whether or not a *p*-value passes a specific threshold (e.g., $p < .05$). I also complied with Carlin's (2016) suggestion that a paradigm shift is necessary to prevent researchers from relying on the results of null hypothesis tests. Furthermore, I agreed with Hak (2014), who asserted that students in the future should not be taught about null hypothesis testing. Consequently, the *p*-values and the results of the null hypothesis tests reported in this dissertation (see Chapter 4) were interpreted neither to provide evidence to address the research questions nor to evaluate the extent to which juvenile offender risk factors were associated with participation in diversion programs and recidivism.

Interpretation of the Findings

Summary of Major Findings

Demographic differences by juvenile program type. The greatest differences were related to the race and the gender of the offenders. Male and Black offenders were more likely to be selected to participate in the longer DP180 than the shorter DP90

program. The largest effect sizes indicated that the offender's father as the primary guardian was the strongest predictor of an offender completing the shorter DP90 program or the longer DP180 program.

Difference in re-referrals for a new offense. Statistical evidence was provided to conclude that there were differences among the five groups of juvenile offenders (completed DP90; completed DP180; dropped out of DP90; dropped out of DP180; rejected) Dropping out of the DP180 program was the strongest predictor of recidivism. The least likely offenders to be referred for a new offense within 1 year were those who did not drop out of the DP90 program.

Detailed findings. Among N = 4,656 juvenile offenders, the median age of participants was 15 years. Male offenders represented the highest proportion. The most frequent racial group was Latino, followed by Black, White, and then Other. Latinos were the most frequent racial group in the DP90 and DP180 programs. Black offenders were more frequent in the DP90 program compared to the DP180 program. White offenders were more frequent in the DP90 program compared to DP180. The answer to the first research question was that the demographic characteristics of the juvenile offenders in the DP90 program may be different from the demographic characteristics of the juvenile offenders in the DP180 program.

There was an association between family size and program type. The mother was the most frequent primary guardian of juvenile offenders who participated in both the DP90 and the DP180 programs. In terms of association, The father was the primary guardian of offenders who took part in the DP180 and DP90 programs. There was an association between the father as the primary guardian and the program type. The mother

was the primary biological parent of most juvenile offenders lived in the home, and in most cases, the biological father or second guardian was absent.

The answer to the second research question was that the main predictors of offenders successfully completing diversion programs, based on the largest effect sizes, were having a father or mother as the primary guardian as well as the offender experiencing a high level of guardian involvement. However, a second guardian could not be included in the analysis, because specific identifying information was not available for most of the offenders.

The types of offenses were classified into two categories. In the first category, the most frequent were Property/Misdemeanor and Illegal Substance. In the second category, the highest frequency were Drugs/Misdemeanor AB and Theft/Misdemeanor AB. The most frequent categories were Misdemeanor B and Misdemeanor A, respectively. The most infrequent offense category was Felony. Most of the juvenile participants completed a DP90 or DP180 diversion program. Gender, age group, and offense were identified as risk factors but were not significant. The offenders were most likely to be referred for a new offense within 1 year if they dropped out of the DP180 program. If the offenders dropped out of the DP90 program, they were less likely to be referred for a new offense within 1 year. The offenders with the least likelihood of recidivism were those who completed DP90 program.

Comparison With Previous Findings

The reason why Black male offenders were more likely to be chosen to participate in the longer DP180 program than in the shorter DP90 program is difficult to explain. One reason could be that that gender differences are key risk factors for different types of

juvenile offending (Belknap & Holsinger, 2006; Heide, Roe-Sepawitz, Solomon, & Chan, 2012; Rhodes et al., 2015) as well as variable rates of recidivism between male and female offenders (Benda, 2005; Bonta, Pang, & Wallace-Capretta, 1995; Brown & Motiuk, 2008). Therefore, the DP90 and DP180 programs may be tailored differently for male and female offenders. Furthermore, Black offenders are known to be more likely to reoffend compared to Hispanic and White offenders (Ryan et al., 2013). Therefore, Black male offenders may be more likely to be chosen for the DP190 program, in the hope that detention for a longer period may help to promote rehabilitation and deter recidivism.

The reasons that the main predictors of offenders successfully completing diversion programs included having a father or mother as the primary guardian as well as the offender experiencing a high level of guardian involvement need to be considered. Poor parent-child relationships and dysfunctional families are known to be risk factors associated with a high rate of juvenile offending (Bergseth & Bouffard, 2013; Hanser & Mire, 2008; Vincent et al., 2012) as well as a high rate of recidivism (Roe et al., 2008; Tully et al., 2013; Van der Put et al., 2013). It is therefore possible that if juvenile offenders experience meaningful and close relationships with their parents, then the offenders may feel highly motivated to complete a diversion program and return to the security of their loved ones. Conversely, if juvenile offenders do not experience a strong connection with their parents, then they are more likely to drop out of diversion programs, possibly because they feel unmotivated because they are unable to return to the security of their families.

The rate of recidivism among N = 4,656 juveniles managed by the large urban juvenile probation department (15.3% per year) between 2013 and 2015 appeared to be

substantially smaller than the rate of recidivism reported in previous studies. For example, in the State of Washington, the rate of recidivism of juvenile offenders was reported to be 53% among boys and 46% among girls (Sentencing Guidelines Commission, 2008). Aebi et al., (2011) estimated a recidivism rate of 44.8% among juvenile offenders during a mean follow-up period of 4.3 years. Carpentier and Proux (2011) estimated that 45% of juvenile sex offenders were subsequently charged with a new criminal offense. Seigle, Walsh, and Weber (2014) suggested that the recidivism rate of juvenile offenders may be as high as 75% in some states. However, each state's juvenile justice system defines, measures, and reports recidivism rates in a different way (Office of Juvenile Justice and Delinquency Prevention, 2014). Consequently, comparing the recidivism rate observed in this study with previous studies in other states is very difficult.

The question concerning the difference in recidivism among five groups of juvenile offenders was addressed. The strongest predictor of recidivism observed in this study was dropping out of the DP180 program. Offenders who did not drop out of a diversion program were less likely to be referred for a new offense within 1 year. These findings are consistent with previous suggestions that completing diversion programs generally results in lowering the rate of recidivism among juvenile offenders (Petrosino et al., 2010; Schwalbe et al., 2012; Wilson & Hoge, 2012). The findings of the current study are also consistent with recent research conducted by Kretchmar et al., (2018) using binary logistic regression analysis to predict recidivism using program completion as the predictor variable. Juveniles who successfully completed diversion programs were found to have lower odds of reoffending and had fewer subsequent offenses compared to

juveniles who completed unsuccessfully or did not participate. Dropping out of a diversion program may therefore be identified as a risk factor that may potentially lead to recidivism. The results of all previous studies have indicated, however, that participation in diversion programs does not prevent recidivism among all juvenile offenders. One size does not fit all, meaning that a program that works for one juvenile offender does not necessarily work for other juvenile offenders.

Analysis Related to Theoretical Framework

This study indicated that structural factors, including demographic and environmental characteristics, may influence a juvenile's decision regarding whether to participate in conforming and/or nonconforming patterns of social behavior, specifically completing or dropping out of a diversion program, and continuing or not continuing to offend. Accordingly, the findings of this study confirm that social learning theory is highly applicable to the development of diversion programs to reduce the rate of recidivism among juvenile offenders. In the context of the current study, social learning theory helps to explain how the family organization (e.g., the level of parental involvement of the juvenile offenders) as well as the environmental conditions to which the juvenile offenders are exposed (e.g., the different types of diversion program) may potentially influence a juvenile's subsequent criminal behavior (e.g., recidivism). In conclusion, the findings of this study support the general view that social learning theory is an effective, successful theoretical approach to examine the origins, development, and outcomes of criminality (Akers & Jensen, 2003, 2006, Akers & Sellers, 2008; Khron, Lane, & Winfree, 2015).

Limitations of the Study

Design Limitations

As described in Chapter 3, the research design was correlational, using archival data. The use of archival data facilitated the examination of the statistical relationships among multiple variables, but its weaknesses included the inability to manipulate the conditions or assign participants into groups based on their personal attributes (Jones, 2010). This posed several limitations to the external and internal validity of the study.

The findings of this study may not be completely representative of all juvenile offenders in the United States, due to the uncertainty of similarities between the juvenile offender population chosen and those in other parts of the country. Therefore, the broader applications of external validity of the conclusions may be limited (Stangor, 2015). Because the findings based on the characteristics of N = 4,656 juvenile offenders located in one urban probation department may not be representative of the characteristics of the juvenile offender population in the United States as a whole, the extrapolation of the results of this study to the population of juvenile offenders attending diversion programs in the United States is not advised.

Regarding interval validity, there are considerable tradeoffs to the efficiency of archival data (Jones, 2010). Although the secondary analysis using archival data was cost-effective, the study was restricted to only those variables available in the data set. Additional variables that previous research has deemed to be predictive could not be included. For example, many risk factors defined in Chapter 2, such as substance abuse, deviant peer relations, poor academic performance, frequent changes in schools, medical/physical problems, antisocial attitudes/beliefs, aggressive behavior, feelings of

social isolation, and issues associated with hyperactivity, impulsivity, attention deficit, and various psychopathologies (Hanser & Mire, 2008; Roe-Sepowitz & Krysik, 2008; Vincent et al., 2012), were omitted. Because these variables could not be included, it was not possible to identify potentially confounding variables that may have significantly influenced the results of the statistical analysis. A related limitation was that the I was unable to control the selection of cases, so that the groups identified used in the study could only be attribute based or assigned by criteria other than random assignment.

Analysis Limitations

The main conclusions of this study were based on the results of binary logistic regression analysis. Although binary logistic regression analysis is widely used for exploring the associations between multiple independent variables and one dichotomous variable coded by 0 and 1 (Hosmer & Lemeshow, 2000), its limitations need to be considered. The results of logistic regression are compromised if the sample size is too small (Demidenko, 2007). The results of this study were not, however, limited by sample size, because N = 4,656 juvenile offenders was large enough to provide a high level of power to generate statistically significant ($p < .05$) results with effect sizes that reflected practical significance.

The effect sizes were interpreted to examine the strengths of the statistical associations between the demographic and social characteristics of the juvenile offenders, the participation of the juvenile offenders in diversion programs, and recidivism. The larger effect sizes that reflected the practical significance of the results of binary logistic regression analysis were $OR \leq 0.5$ or ≥ 1.5. These effect sizes were large enough to demonstrate that the results were meaningful and had practical implications for social

change in the context of research in applied psychology and social science (Vacha-Haase, 2002, Ferguson, 2009, Rosenthal, 1996).

The statistical models constructed by logistic regression facilitated conclusions being drawn about the associations between the demographic and social characteristics of the juvenile offenders; the participation of the juvenile offenders in diversion programs; and the recidivism rate of the juvenile offenders. However, it was not possible to prove definitively using statistical models alone that the level of parental/guardian involvement of the juvenile offenders and/or the different types of diversion program were causal factors that had subsequent positive or negative effects on a juvenile's recidivism. Statistical models based on the analysis of archival or survey data can only provide a summary description of the associations between independent and dependent variables, and may be useful for prediction, but such models cannot prove the existence of meaningful relationships between causes and effects (Collier et al., 2010; Pearl, 2009). Furthermore, the conclusions based on the statistical models used in this study were limited, because each model only contained a few independent variables and one dependent variable. As previously stated above, the main threat to the internal validity of the results was the absence of potentially important contributing and confounding variables (e.g., the results of psychological evaluations of the juvenile offenders).

Recommendations

To achieve external validity, the risk factors associated with diversion program participation and recidivism require further intensive study, within other localities and jurisdictions. Recommendations for further research include examination of the

effectiveness of culturally appropriate adaptions to diversion programs that have been specifically designed and sensitive to the needs of different groups of juvenile offenders. One previous study indicated that diversion programs specifically adapted for offenders in minority ethnic groups and/or those with increased risk of recidivism did not achieve more successful outcomes than mainstream treatment; however, more detailed studies, with a greater level of analytical depth and methodological rigor are needed in order to increase knowledge, improve practice, and develop policy (Vergara, Kathuria, Woodmass, Janke, & Wells, 2016). In addition, a longitudinal study is recommended to examine the comparative success of diversion programs for more than one year. While studies have shown that juveniles are most likely to re-commit crimes within the first year, follow up for more than one year could be useful in understanding the risk factors that predict long-term success.

The recommendations for future research presented here are underpinned by social learning theory positing that social and demographic factors may act as moderators of an individual's behavior (Bandura, 1986). A moderator is defined in statistics as a third variable that intervenes between a predictor and an outcome and controls the strength and/or direction of the correlation between the predictor and the outcome. A moderating effect is defined as the correlation between an interaction term (product of the predictor x the moderator) and the outcome (Baron & Kenny, 1986, Dawson, 2013, Hayes, 2013, Jose, 2013). However, the current study did not apply moderation analysis to examine the extent to which juvenile offender risk factors may control the relationships between participation in diversion programs and recidivism mainly because of the constraints imposed by the use of secondary data.

The most meaningful types of criminal justice and criminology research based on survey and archival data generally require more complex analysis of a larger number of predictors, moderator, mediator, and dependent variables in a single model, involving the use of more complex and modern multivariate statistics, specifically structural equation modeling (Boduszek, Adamson, Shevlin, Hyland, & Bourke, 2013, Cochran, Maskaly, & Jones, 2015, Gau, 2010, Kirchner, 2016). Future research should focus on the use of modern multivariate techniques, such as structural equation modeling (SEM) to consolidate the findings of this study and construct complex statistical models that incorporate multiple predictor, moderator, and dependent variables. SEM has previously been applied by several researchers to test social learning theory in the context of criminal behavior, but not in the context of recidivism (Cochran et al., 2015). SEM has also been previously been applied to support the dimensions of social identity theory, with findings demonstrating the effect of antisocial friend associations on criminal thinking among persistent re-offenders (Boduszek et al., 2013).

The structural equation model depicted in Figure 1 could potentially be constructed to test the hypothesis that social factors, such as the strength of guardian involvement, moderate the relationship between participation in a diversion program and the completion of a diversion program. Furthermore, the completion of a diversion program should be correlated with reduced recidivism and moderated by the type of diversion program.

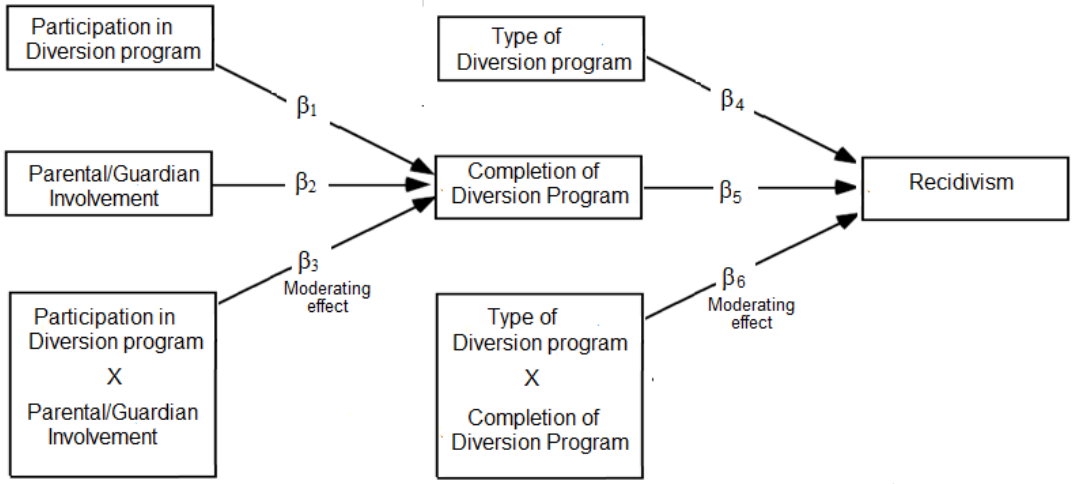

Figure 1. Proposed structural equation model based on social learning theory.

The rectangular symbols in Figure 1 represent the variables. The arrows labeled β1, β2, β3, β4, β5, and β6 represent the path coefficients measuring the strengths of the relationships between the variables. β_3 measures the moderating effect of the level of parental/guardian involvement on the relationship between participating in a diversion program and completing a diversion program. The strength and direction of β_3 must be interpreted to explain how the correlation between participation in a diversion program and completion of a diversion program depends on the magnitude of parental/guardian involvement. β_3 is expected to be positive, implying that the higher the magnitude of parental/guardian involvement, then the more positive will be the correlation between participation in a diversion program and completion of a diversion program.

β_6 measures the moderating effect of the type of diversion program (e.g., DP90 or DP180) on the relationship between completing a diversion program and recidivism. The

strength and direction of β_6 must be interpreted to explain how the correlation between the completion of a diversion program and recidivism depends on the type of diversion program.

The results of the current study revealed that the type of diversion program, and the completion of a diversion program, may be related to the gender, race, and family size of the juvenile offenders. Therefore, it is recommended to incorporate these demographic factors as controlling variables in the proposed structural equation model outlined in Figure 1.

In addition to further quantitative studies, more qualitative research, based on the principles of phenomenology, may be beneficial to explore the important role of the parents (including guardians who are not necessarily the parents) to help reduce the recidivism of juvenile offenders who participate in diversion programs. Phenomenology assumes that the ultimate source of all meaning and value is the lived experience of human beings (Sokolowsi, 2000). The knowledge gained from phenomenological studies, involving the thematic analysis of narrative data collected by face-to-face interviews with parents or guardians and juvenile offender, may provide more insight and understanding of the causes of recidivism. For example, previous qualitative research has identified that extreme family deprivation (Shong, Bakar, & Islam, 2018) and lack of support from their parents (Sander, Sharkey, Olivarri, Tanigiwa & Mauseth, 2010) are risk factors for juvenile delinquency.

Implications

The findings of this study are important to various stakeholders (i.e., parents/guardians, probation officers, attorneys, judges, and other collaterals) whose involvement are critical components to the successful outcomes of diversion programs.

The findings of this study exposed the possible actions for positive social change on various levels. This study has implications that could facilitate the improvement of services in diversion programs and possibly deter unwarranted juvenile offender behavior including dropping out and recidivism.

The data gained from this study will be shared with a larger urban juvenile probation department and other various diversion programs that provide services, as such, to juvenile offenders. At the administrative and community level, this study will highlight the areas in need of improvement and ways to better serve individuals of this population. To improve the community's needs, the outcome of this study can be useful to address explicit matters concerning diversion programs and services.

The practical implications of the observed differences in the gender and ethnicity of juvenile offenders between different diversion programs (e.g., DP90 and DP180) are that demographic differences between offenders should ideally be reflected in risk assessments to tailor different types of diversion program according to the gender and ethnicity of the offenders (Schwalbe et al., 2012; Wilson & Hoge, 2012).

The most important practical implications of this study are based on the finding that family factors (e.g., the levels of parental/primary guardian involvement) predict the rate of completion of diversion programs, and also that the completion of diversion programs predicts a low rate of recidivism. Consequently, more family-based therapies, including multiple family group formats, and parental management training, (as described by Schwalbe et al., 2012) implemented during and/or after participation in diversion programs are recommended. Family-based therapies may be most successful for those juveniles who are already known to have strong parental/primary guardian involvement,

and with an associated high motivation to complete their diversion programs. Such strategies, however, may not be so successful for those juvenile offenders who have little or no parental/primary guardian involvement, and who may potentially drop out of diversion programs because they are unmotivated by receiving little or no support from their parents.

Strengthening families and communities through the access of services (i.e., anger management, individual/group therapy, mental and behavioral health services) is another recommendation (however, this recommendation was not based on the findings of the current study). Combining multiple types of long-term programs, such as school and family intervention, may have positive effects on parenting skills and behavior outcomes. Involving parent(s)/guardian(s) in the juvenile's offender's treatment is a key element to success and can help interrupt the cycle of delinquent behavior. It also allows the parent/guardian to learn tools necessary to effectively parent at-risk youth. Participating in a diversion program to deter delinquency is a band-aid to the true problem that prompted the unwarranted behavior, if underlining issues are not, first, addressed. Sending an offender into the same environment that instigated the delinquent behavior is a never-ending cycle and increases the likely chance of recidivism.

Social learning theory implies that behaviors are learned. Therefore, it is paramount that the juvenile offender's environment factors should be thoroughly assessed. Important risk factors may include permissive, unstable families, as well as other biological and environmental influences. A community-wide effort (schools, churches and mentors) may be significant to help juvenile offenders and their families. Therefore, a stronger framework should be developed, based around the families of the

offenders, to promote successful outcomes in diversion programs and decrease recidivism.

More emphasis should be placed on school intervention programs in terms of addressing/targeting problem behaviors, aggression, violence, substance abuse and learning disabilities, as they are all interrelated. Behavioral skills training and role playing are other useful tools that should be implemented within school intervention programs, because they may have a stronger effect on the peer to peer and parent-child relationship. Schools may also aid in behavior management and contribute to successful development through nurturance and the development of social skills.

Conclusion

The results of this study support the value of juvenile diversion programs to reduce recidivism in a large urban juvenile probation department. Juvenile diversion programs are beneficial intervention programs that deter a high proportion of youth from unwarranted behaviors that could result in the offender's continued involvement in the juvenile justice system. Although the results of this study add to the body of knowledge that supports the use of diversion programs but have not really "tapped" into the underlying issues of a system that poorly serves the needs particular segments of the community. It is important to understand that these juvenile offenders are the future; therefore, it is critical and necessary that the system be improved to better address their needs. Juvenile offenders deserve a second chance to thrive and correct the behavior(s) while still being held accountable for their actions.

Recidivism appeared to be most likely among juvenile offenders who were not closely involved with their biological families. That is why more family therapy is

needed to better serve juvenile offenders. Future research to determine the impact of parental and family involvement on the outcomes of participation in diversion programs may be applied in practice to help the judicial system to develop new policies. To achieve the common goal of improving risk management policies and treatment for juveniles, there is still a need for improved relationships between parents and professionals (i.e., lawyers, psychologists, psychiatrists, politicians, and researchers). Better understanding how the recidivism of juvenile offenders is underpinned by social learning theory may help to develop and give insight into suitable rehabilitation services,

The findings of this and future research may inform the legal and judicial systems to exert more effort to provide improved diversion programs for juvenile offenders. In particular, it is necessary to achieve a better understanding of what specific type(s) of diversion programs could be implemented in large urban communities to divert re-offending behavior.

Bearing in mind that that diversion programs were designed to reduce problematic behavior and decrease recidivism the finding of this and future studies could be translated into practice in order to: (a) recognize the essential components of diversion programs that are important for each individual offender; (b) highlight and identify relevant services and approaches, classified by the demographic characteristics of each offender (e.g., gender, race, offense type, and social or family background); (c) design specific intervention programs to support those offenders who are most at-risk of recidivism (e.g., those who receive little or no support from their parents or guardians).

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Appendix A: Letter of Cooperation

[redacted]	
JUVENILE PROBATION DEPARTMENT ***Juvenile Justice Center****	

Research Approval

After having reviewed documents submitted by *Latasha L. Allen*, entitled *Juvenile Offender Risk Factors Associated with Participation in Diversion Programs and Recidivism*, we approve the project:

Research Proposal approved on the 23rd day of February 2018 by the undersigned [redacted] Research Committee Members:

[redacted]

[redacted]
Desirae Gonzales, M.S.

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Matthew Shelton, Ph.D.

[redacted]
Nicole Trojan, M.S.

Appendix B: Relationship Codes

Code	Family Relation Description	
AG	ADOPTED GRANDPARENT	Adoptive Guardians
AB	ADOPTIVE BROTHER	
AF	ADOPTIVE FATHER	
GF	ADOPTIVE GRANDFATHER	
GM	ADOPTIVE GRANDMOTHER	
AM	ADOPTIVE MOTHER	
AS	ADOPTIVE SISTER	
AFP	ASSUMED FEMALE PARENTAL FIGURE - NOT PARENT	Assumed Parental Figure
APF	ASSUMED MALE PARENTAL FIGURE - NOT PARENT	
BF	BIRTH FATHER	Birth parent or grandparent
GH	BIRTH GRANDFATHER	
GG	BIRTH GRANDMOTHER	
BG	BIRTH GRANDPARENT	
BM	BIRTH MOTHER	
BB	BLOOD BROTHER	Blood Related Relative
BS	BLOOD SISTER	
CR	CHILD RELATIVE	
CJP	CJPO CUSTODY - OTHER COUNTY	
CL	COMMON LAW SPOUSE	
CO	COUNSELOR	Nonrelated Principles
CP	CPS WORKER	
CG	CUSTODIAL GUARDIAN	
DU	DAUGHTER	Blood Related Relative
FJ	FATHER OF JUVENILE'S CHILD	Blood Related Relative
FC	FOSTER CHILD	
FF	FOSTER FATHER	Foster Family
FM	FOSTER MOTHER	
FR	FRIEND	Associates
GA	GANG ASSOCIATE	
G9	GREAT GRANDFATHER	Great Grand Parents
G8	GREAT GRANDMOTHER	
IA	INFLUENTIAL ADULT	Unrelated Principles
JP	JUVENILE PROBATION OFFICER - OTHER COUNTY	
LG	LEGAL GUARDIAN	Guardian
MA	MATERNAL AUNT	Maternal Relative

MU	MATERNAL UNCLE	
MJ	MOTHER OF JUVENILE'S CHILD	Blood Related Relative
OT	OTHER	Unrelated Principle
OR	OTHER RELATIVE	Blood Related Relative
PA	PATERNAL AUNT	Parental Relative
PU	PATERNAL UNCLE	
PC	PERM. MANAGING CONSERVATOR	Conservator
SO	SON	Blood Related Relative
SB	STEP BROTHER	
SF	STEP FATHER	
GL	STEP GRANDFATHER	
GK	STEP GRANDMOTHER	Step Relative
SG	STEP GRANDPARENT	
SM	STEP MOTHER	
SS	STEP SISTER	
TR	TEACHER	Unrelated Principle
TC	TEMP MANAGING CONSERVATOR	Conservator
IC	TX ICJ LIAISON	
UF	UNRELATED FEMALE YOUTH	
UM	UNRELATED MALE YOUTH	

Appendix C: Results of Power Analysis