2007

# Analysis of the association between socio-demographic variables, juvenile offending, and formal vs. informal juvenile justice system handling in a non-urban sample

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ANALYSIS OF THE ASSOCIATION BETWEEN SOCIO-DEMOGRAPHIC VARIABLES,
JUVENILE OFFENDING, AND FORMAL VS. INFORMAL JUVENILE JUSTICE SYSTEM
HANDLING IN A NON-URBAN SAMPLE

A Dissertation
submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The School of Social Work

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December 2007

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**ABSTRACT**

**PURPOSE:** This study compares and contrasts first-time juvenile offenders enrolled in a community-based intervention program whose cases were processed either informally or formally, and examines empirically- and conceptually-relevant contributors to re-offending.

**METHODS:** This is a longitudinal, secondary analysis of 1072 male and female offenders. The study includes descriptive univariate analyses; chi-square bivariate analyses of each independent variable with the dependent variables (level of processing and recidivism at both one and three years); and binary logistic regression analyses to identify significant predictors of the dependent variables. Independent variables include age, gender, race, family structure, marital status of biological parents, family income, number of children in the home, type of offense, program completion, and POSIT risk scores (including substance abuse, physical health, mental health, family relationships, peer relationships, educational status, and aggressive behavior/delinquency). **RESULTS:** Variables significantly associated with level of processing were race, gender, type of offense, marital status of the biological parents, number of children in the home, and family relationship risk. Multivariate predictors of formal levels of processing were age, gender, race, type of offense, marital status of biological parents, and the number of children in the home. For one-year recidivism, analysis showed significant associations with level of processing and educational risk. Recidivism within three years was associated with age, program completion, and educational risk. Logistic Regression models showed family income, marital status of biological parents, and program completion are predictors of one-year recidivism. For predictors of three-year recidivism, age, family income, program completion, marital status of the biological parents, and mental health risk had significant partial effects.

**CONCLUSION:** A greater understanding of the factors that are associated with and predict

level of juvenile justice processing and recidivism for first-time juvenile offenders is critical to the success of the juvenile justice system and its associated intervention efforts as this is the group of youth active in the system in the largest proportions at any given time. This study lends to that understanding and offers analysis of both male and female youth in a non-urban setting and examines how family characteristics are associated specifically with level of processing, which are unique attributes compared with juvenile justice studies in the literature.

**CHAPTER 1: INTRODUCTION**

The United States' Juvenile Justice System was founded over a century ago with the first

Juvenile Court Act passed in Illinois in 1899 (Sharp & Hancock, 1995). This newly emerging

system, which was part of the child-saving movement of the 1800s, had as its goal provisions for

individualized intervention with children in trouble (Sharp & Hancock, 1995). In the 1990s, the

boundaries, initially set to separate the juvenile system from the criminal justice system, began to

erode. State policies and practices across the nation resulted in more youth in adult criminal

courts, harsher sanctions, and more incarceration (Snyder & Sickmund, 2006). Over 2.3 million

youth are now arrested each year in the United States (Sickmund, 2004). Questions have

mounted in regards to the system's effectiveness (Geraghty & Drizin, 1997; VanVleet, 1999).

This is confounded by a net-widening effect as the youthful population being served by this

system has risen from U.S. Juvenile Courts handling 1,100 delinquency cases daily in 1960 to

4,500 delinquency cases per day in 2004 (Snyder & Sickmund, 2006; Office of Juvenile Justice

Delinquency Prevention [OJJDP], 2007a). A 44% increase in the total number of cases handled

by juvenile courts was noted between 1985 and 2004, which included a 159% increase in the

number of drug offense cases, 141% increase in public offense cases, and 120% increase in

person offense cases (OJJDP, 2007b).

Zimring (2000) states that a central objective of the juvenile court is to protect

delinquents from the punishments of the adult criminal justice system and thus acts as a

diversion from criminal justice.  Hurst and McHardy (1991) discuss the history and mission of

the juvenile court from its inception through 1990, noting a general trend toward

deinstitutionalization in the latter part of the 20th century. These authors stress that it is crucial

that interventionists become more successful at changing the behaviors of delinquent youth and

the environments in which they operate in order to prevent a return to a more punitive approach.

Brown, Miller, Jenkins, & Rhodes (1991) emphasized the importance of adjudication by the

juvenile court upon the first referral to the juvenile justice system in order to prevent future

imprisonment for crimes in adulthood. Adjudication is defined as the court process that

determines (judicial determination) if a juvenile committed the act for which they are charged,

and adjudicated indicates that the court concluded the juvenile committed the delinquency or

status offense charged in the petition (Stahl, Puzzanchera, Sladky, Finnegan, Tierney, & Snyder,

2005). Brown et al. (1991) conducted their study in Pennsylvania and showed that those youth

who were not adjudicated at the time of their first referral to the juvenile justice system were

more than twice as likely to enter prison as an adult. In another study, Ezell (1989) compared

cases of delinquent youth which were arbitrated through a diversion program (i.e. informal

processing) versus those which were adjudicated and placed on probation. The findings indicated

that for those cases that were diverted, the rate of recidivism decreased for some youth when

compared to probation (i.e. formal processing). In another study, Snyder (1988) analyzed the

court involvement of youth, ages ten to seventeen, and found that the rate of re-referral to

juvenile court varied with age and the likelihood of re-referral increased with the number of prior

juvenile court contacts. These and other contradictory findings suggest a need for further study

of early juvenile processing decisions, which are amplified by the debate that remains regarding

the impact of referring a youth to juvenile court versus diverting youth and how that affects

future delinquent/criminal behavior (Smith & Paternoster, 1991). These studies, the growing

body of evidence, and the objective of the juvenile justice system to deter youth from entering

the criminal justice system, also suggest the importance of developing effective non-institutional

programs which are not solely punitive and that can readily respond to the needs of a variety of youth upon their first contact with the system.

There is well established literature on the causes, correlates, risk and protective factors of juvenile delinquency in primarily male samples from large metropolitan areas (Hawkins, 1995; Hawkins, Arthur, & Catalano, 1995; Hawkins, Catalano, & Miller, 1992; Loeber, Farrington, Petechuk, 2003; Snyder, 2001; Thornberry, Huizinga, & Loeber, 2004). In comparison to the number of studies of male youth from metropolitan areas, there has been a dearth of information in regards to both female offending and non-urban populations particularly in relation to early juvenile justice system processes and interventions.

Only recently has there been mounting efforts to examine risk factors and correlates in association with female offenders (Acoca & Dedel, 1998; Chesney-Lind, 1999; Juvenile Justice and Delinquency Prevention Act, Pub. L. 93–415 (1974) amended in 2003; Poe-Yamagata and Butts, 1996). Chronic juvenile offenders have been shown to possess very distinct characteristics; however, most studies reflect the perspective of the male offender (Acoca & Dedel, 1998). The national call for the generation of female delinquency-related research by the U.S. Office of Juvenile Justice was as recent as 2003 when the 1974 Juvenile Justice and Delinquency Prevention Act was amended to give credence to the uniqueness of female delinquents (Juvenile Justice and Delinquency Prevention Act, Pub. L. 93–415 (1974), amended in 2003). In follow-up to the amendment of law, the Office of Juvenile Justice and Delinquency Prevention facilitated the formal creation of the National Girls Study Group in 2004.

There are a plethora of federal and state statutes and rules governing juvenile justice; however, it has been consistently demonstrated that the administration of juvenile justice varies with urban, suburban, and rural applications (Feld, 1991). Studies of juvenile delinquency from

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non-urban samples are beginning to emerge yet they still offer a limited picture of non-urban juvenile offending and juvenile justice processes (OJJDP, 1999; Osgood & Chambers, 2000). What has been shown is that urban areas serve more heterogeneous populations and rely more on formal juvenile justice processes with more severe sentencing practices (Feld, 1991). Rural areas are suggested to have more homogeneous populations and rely more on less formal processes with more lenient sentencing (Feld, 1991).

Unlike the limited availability of female and non-urban studies, there have been numerous studies in the past fifty years that have examined how race is associated with juvenile justice decision making, and currently there is an emerging interest in the specific area of disproportionate minority contact at various points in the juvenile justice system and whether this is due to racial bias or risk factors that are highly correlated with race (Bishop, 2005; Huizinga, Thornberry, Knight, Lovegrove, 2007; Pope & Snyder, 2003; Snyder & Sickmund, 2006). Disproportionate minority contact is defined as contact at any point within the juvenile justice system where greater proportions of minorities are associated or referred (Huzinga et al., 2007). In support of this issue, a recent study reviewing juvenile justice system data from 1997 and 1998, reported that African American youth accounted for 26% of all arrests and 31% of referrals to juvenile court, 34% of youth formally processed by the juvenile court, and 32% of the youth adjudicated delinquent while comprising only 15% of the juvenile population in the U.S. (Poe-Yamagato & Jones, 2000).

## Purpose of the Study

This current study examines the interrelationships of individual and psychosocial characteristics of first-time youthful offenders at an early level of involvement with the juvenile justice system in a non-urban population. Gender, race, socioeconomic factors, family structure

and how these variables related to level of juvenile justice processing and continued delinquent behavior post processing were of particular interest in this study. The association of psychosocial risk scores on the Problem Oriented Screening Inventory for Teens (POSIT), the level of processing the youth received in the juvenile justice system, and subsequent recidivism was also explored.

Unique to this study is that the single intervention program that was reviewed served both informally processed (i.e. non-adjudicated/diverted) and formally processed (i.e. adjudicated), male and female first-time offenders. Information concerning personal, family, educational, and social characteristics was collected on the participants as was level of juvenile justice processing, intervention program completion, and recidivism data. Recidivism refers to the repetition of delinquent or criminal behavior within a given period of time (Snyder & Sickmund, 2006). One of the objectives of this study was to research the participant characteristics and the impact of the levels of juvenile justice processing that may predict recidivism in the early intervention phases of the system being studied. Furthermore, the study sought to focus attention towards characteristics that may portray female offenders differently then the known risk factors for their male counterparts as well as how the system response may differ by gender.

<div align="center">Significance of the Study</div>

Scope of the Problem

In 1967 the President's Commission on Law Enforcement and Administration of Justice recommended that the juvenile justice system emphasize deinstitutionalization and diversion (i.e. informal, pre-adjudication handling) instead of incarceration of young offenders (Empey, 1967). In the wake of this recommendation, the dispositional options for delinquent youth greatly diversified (Greenwood, 1996). Initially, many scholars of the 1970s reported that juvenile

interventions were consistently ineffective (Greenberg, 1977; Lipton, Martinson & Wilks, 1975; Lundman, McFarlane & Scarpitti, 1976; Martin, Sechrest, & Redner, 1981; Romig, 1978; Sechrest, White, & Brown, 1979; Wright & Dixon, 1977). By the 1990s, a growing body of evidence synthesized in a number of meta-analyses of juvenile programs showed that the average juvenile justice program reduced recidivism (Lipsey 1992, 1995, 1999; Lipsey & Wilson 1997). In one meta-analysis, Lipsy (1999) studied evaluations of programs serving non-institutionalized juvenile offenders and on average found that the best programs reduced recidivism by about forty percent. The best types of interventions for reducing recidivism with non-institutionalized youth were identified as individual counseling, interpersonal skills training, behavioral programs, and interventions that involved multiple services (Lipsey, 1999). Yet even with the evidence of successful intervention programs for youth, by the close of the 20th century, states were getting tougher on juvenile offenders by either shifting away from traditional rehabilitation models and moving toward a punishment-oriented juvenile justice or by legislating new or expanded legal means for greater numbers of juvenile offenders to be moved to criminal court for adult processing and punishment (Frazier, Bishop, & Lanza-Kaduce, 1999).

To preserve the objective of the juvenile court, which according to Zimring (2000) is to protect delinquents from the punishments of the adult criminal justice system and to act as a diversion from criminal justice, it is important to look closely at what is known about many of the youth who represent the delinquency and status offense cases handled each year by juvenile courts in the United States. Of the total delinquency court cases in the U.S. for 2002 ($N = 1,615,400$), juvenile court records reflect that most cases, over one-third, involved property crime  (e.g. burglary, larceny-theft, arson, vandalism, trespassing, possession of stolen property, etc.), followed by approximately one-fourth that involved public order offenses (e.g. obstruction

of justice, disorderly conduct, weapons offenses, liquor law violations, etc.) (Stahl et al., 2005).

Other smaller delinquency case counts for juvenile court in 2002 included simple assault

(16.7%), drug law violations (12.0%), and violent crimes (4.7%), which included murder,

forcible rape, robbery, and aggravated assault (Stahl et al., 2005).

Although courts handle a substantial number of juvenile cases and offer critical

information on offenders, another more expansive barometer of juvenile offending is arrests. In

2003 there were 2,220,300 estimated arrests of persons under the age of eighteen which

represented just over six percent of the total youth population of the U.S. between in the ages of

10 and 17 ($N = 33,499,000$) that same year (Snyder & Sickmund, 2006).  A little under one-third

(29%) of the juveniles arrested were female, and just under three fourths (71%) were male

(Snyder & Sickmund, 2006). This represents an increase in the proportion of female youth

entering the juvenile justice system for law violations from 1980 when females represented 20%

of all arrests (Snyder & Sickmund, 2006). This upward trend is attributed to substantial increases

in arrests for aggravated and simple assaults by females (Snyder & Sickmund, 2006). The ages

of all youth arrested in 2003 were reported as 68% being between the ages sixteen to seventeen

and 32% between the ages of ten to sixteen (Snyder & Sickmund, 2006). A breakdown of arrest

statistics by race reflect that 71% of those arrested were identified as white, 27% black, 2%

Asian, and 1% American Indian (Snyder & Sickmund, 2006). It should be noted that ethnicity

was not recorded and Hispanics were classified racially as white.

Referencing the same 2,220,300 arrests for 2003, just over twenty percent were for

property crimes (i.e., burglary, larceny-theft, motor vehicle theft, and arson), eleven percent were

for simple assault, nine percent were for drug abuse violations, and nine percent were for

disorderly conduct (Snyder & Sickmund, 2006). Other arrests in smaller percentages included

driving under the influence (7.0%), runaway (5.6%), vandalism (4.9%), violent crime (4.2%), carrying or possessing a weapon (1.8%), and stolen property offenses (1.1%) (Snyder & Sickmund, 2006). In addition to these specific offenses, nineteen percent were for arrests classified as other, except traffic violations (Snyder & Sickmund, 2006).

Further trend analysis of these arrest figures shows that violent crime arrest rates as well as overall arrest rates have decreased since 1980 for all youth between the ages of 10 and 17 with the exception of assault and drug abuse arrests which have seen a steady increase (Snyder & Sickmund, 2006). Arrests for simple assault accounted for two-thirds of all arrests in 1980 and grew to just over three quarters by 2003 (Snyder & Sickmund, 2006). Arrests for drug abuse have increased by approximately two-thirds during the same period (Snyder & Sickmund, 2006). Arrests for violent and drug offenses for the subset of youth ages ten, eleven, and twelve increased between 1980 and 2003 (Snyder & Sickmund, 2006). During that period, arrest rates for juveniles between the ages of 10 and 12 increased 197% for simple assault, 138% for weapons violations, 126% for curfew and loitering law violations, 121% for sex offenses, 116% for disorderly conduct, 105% for drug abuse violations, and 91% for assault (Snyder & Sickmund, 2006).

The trends in arrests and court handling have also demonstrated an increase in the formal handing of delinquency cases. In 1985, juvenile courts formally processed 45% of delinquency cases and by 2002 formal processing had increased by thirteen percent (58%) (Synder & Sickmund, 2006). Of those formally processed in 2002, nearly 7 in 10 youth were adjudicated (Snyder & Sickmund, 2006). The increase in petitioning for formal court process and subsequent adjudication of delinquency cases from 1985 to 2002 were observed for both male and female youth as well as for all races and ages of youth (Snyder & Sickmund, 2006). Of those

adjudicated delinquent in 2002, just under two-thirds were ordered to probation and just under one-fourth were ordered to an out of home residential placement (Snyder & Sickmund, 2006). This indicates that there was a doubling in the number of delinquency cases receiving probation between 1985 and 2002 and a 44% increase in adjudicated youth being sentenced to an out of home residential placement (Snyder & Sickmund, 2006). The outcome of court processing has also been reviewed through analysis of recidivism. In a study of re-referral to court, Snyder (1988) found that among juveniles ages 10 to 17 with no prior referrals, four in ten (40%) returned to juvenile court at least once before turning eighteen, and among youth age fourteen or younger with at least one prior referral to court, over three-quarters (75%) returned to juvenile court.

Theoretical Significance

Research that examines the individual and psychosocial factors associated with initiation of delinquent offending and subsequent re-offending is supported by two theoretical frameworks. The public health model offers a structure for the analysis of risk and protective factors associated with both delinquency prevention and the likelihood of youth engaging in delinquent behavior. The developmental theory model provides a structure for the examination of the progression of delinquent behavior, including re-offending. These theoretical approaches relate to facets of both delinquency prevention and delinquency intervention which are keys to observing and understanding participants in the juvenile justice system and predicting possible outcomes.

Public Health Risk and Protective Factor Model

As is the case in public health, and specifically its epidemiology components, there are specific factors that influence the incidence, development, and control of problems in

populations. In youth, the etiology of delinquent behavior is affected by psychosocial risk and protective factors that either increase or shield the risk of further development. Psychosocial risk factors include individual factors of the youth (i.e. personality, physiology) or those associated with their social environment such as family, peer group, school, and community (Hawkins, Catalano & Miller, 1992). Psychosocial risk factors have a cumulative negative effect such that as the number of risk factors increases, so does the probability that the youth will engage in delinquent behavior (Kazdin, Kraemer, Kessler, Kupfer & Offord, 1997). Opposing influences called protective factors reduce the likelihood of problem behaviors either directly or by mediating the effects of exposure to risk factors (Arthur, Hawkins, Pollard, Catalano & Baglioni, 2002; Fraser, 1997; Rutter, 1987; Werner & Smith, 1992).

The public health risk and protective factor model provides a predictive description of populations at risk in addition to recommendations as to where to interrupt the progression of the problem. In juvenile justice research, psychosocial risk factors predictive of adolescent problem behaviors are noted as promising targets for preventive intervention and understanding juvenile delinquency (Arthur, et al., 2002; Hawkins, Arthur, & Catalano, 1995; Hawkins, Catalano, & Miller, 1992; Mrazek & Haggerty, 1994; Shader, 2003). The evidence suggests that promoting protective factors while decreasing delinquency risk factors is effective for preventing and intervening in juvenile delinquent behavior (Hawkins & Catalano, 1992). In juvenile justice research utilizing the public health model, refinement of the broad definitions of both the risk factors and their associated causes is encouraged (Farrington, 2000). Researchers have also been encouraged to continue to study the interrelationships between the psychosocial risk factors and delinquency and attempt to make clear how risk factors interact to create a cumulative effect (Shader, 2003).

<u>Developmental Theory Model</u>

Developmental theory, as it relates to juvenile justice, explains delinquency as being the result of a series of events common to delinquents with specific typologies, multiple pathways, and different developmental sequences leading to different outcomes (Huizinga, Esbensen, & Weiher, 1991). Siegle (2004) explains that developmental theories are either latent trait theories describing delinquent behavior as controlled by traits present at birth or soon after that remain stable and unchanging throughout the lifetime; or life-course view, which describes delinquent behavior as a dynamic process, influenced by individual characteristics as well as social experiences. Latent trait theories tend to be utilized mostly by those interested in the psychological causes of delinquency, where as the life-course view tends to be applied by researchers interested in exploring why and when offenders re-offend or desist from offending. The latter is utilized in the current research. Developmental theories have been expressed in terms of developmental pathways and trajectories to delinquency.

The developmental pathways approach examines the onset of delinquency against a continuum of behaviors and categorizes those behaviors into three pathways leading to delinquency: authority conflict pathway, covert pathway, and overt pathway. The authority conflict pathway is described as having the earliest age of onset, with stubborn behavior observed before age 12 progressing to specific acts of defiance and disobedience (Thornberry, Huizinga & Loeber, 2004). By early to mid adolescence, an avoidance of authority is observed as are behaviors such as truancy and running away as the youth may then continue into one or both of the other pathways (Thornberry, Huizinga & Loeber, 2004). The covert pathway is described as having an age of onset at 15 years or earlier with behaviors that are classified as minor and covert (i.e. shoplifting and lying) progressing to more moderately delinquent acts such as

stealing and fraud (Thornberry, Huizinga & Loeber, 2004). The covert pathway culminates in late adolescence to serious delinquency such as auto theft, robbery, and burglary (Thornberry, Huizinga & Loeber, 2004). The overt pathway starts with minor aggression (e.g. bullying) and moves to fighting, including physical assaults and gang-related fighting (Thornberry, Huizinga & Loeber, 2004). The overt pathway culminates in violence by late adolescence including such acts as battery and even rape and murder (Thornberry, Huizinga & Loeber, 2004).

The trajectories to delinquency approach identifies two main courses from which to chart the development of delinquency. The two trajectories have unique causal explanations and are primarily predicted by age of onset and specific conduct problems (Moffitt, 1993). Life-course persistent offenders are predicted by DSM-IV conduct disorder: childhood-onset type with associated behaviors such as minor aggression, lying, hurting animals, biting and hitting by age four; peer rejection; lower cognitive abilities and slower language development; and neurological problems, such as attention deficit or hyperactivity (Moffitt, 1993). Adolescent-limited offenders represent the majority of offenders and are observed to stop offending by age 18 (Moffitt, 1993). This trajectory is predicted by DSM-IV conduct disorder: adolescent type with associated behaviors such as serious aggression, stealing, running away, truancy, and breaking and entering (Moffitt, 1993). The offenders, described by the adolescent-limited trajectory, typically have little to no problems with peer rejection (Moffitt, 1993).

The developmental pathways models have been most consistently observed and reported for male youth. Female offenders have varied more and have not yet been described in such orderly progressions (Moffitt, 1993). These pathways also need to be taken into consideration with the other delinquency psychosocial risk factors such as poor parenting practices and family violence, both of which also seem to accelerate overall risk for delinquency (Loeber, Farrington,

& Petechuk, 2003). Further, unlike in adolescence where delinquent peer association is a noted

risk factor, early childhood peer rejection seems to initiate a course of seeking out acceptance by

deviant peer groups later in life (Loeber, Farringon, & Petechuk, 2003).

Both the public health risk and protective factors model and the developmental pathways

theory model support the purpose of this current study. The purpose of this study is to compare

and contrast first-time juvenile offenders enrolled in a community-based intervention program

whose cases were processed either formally or informally and examines, empirically and

conceptually, relevant contributors to re-offending. Gender, race, socioeconomic factors, family

structure, and how these variables are associated with both level of juvenile justice processing

and continued delinquent behavior upon program entry, were of particular interest. Associations

among youths' psychosocial risk factors, level of processing, and recidivism rates were explored.

The public health risk and protective factors model was used to explore variables such as gender,

race, family structure, family income, family relationships, educational risk, physical health risk,

substance abuse risk and their association with level of juvenile justice processing and

recidivism. The developmental theory model, specifically the pathways approach, was used to

explore age of first-offense, variables associated with the type of offense, aggression risk factors,

and mental health risk issues. Both the public health risk and protective factor model and

developmental pathways theoretical approach relate to facets of delinquency prevention and

delinquency intervention which are keys to observing and understanding participants in the

juvenile justice system and predicting possible outcomes.

Additionally, a number of psychosocial risk factors were explored through examination

of participant scores on the Problem Oriented Screening Instrument for Teens (POSIT). This

self-report screening tool was designed to identify potential problem areas that require further in-

depth assessment and includes risk scores for problematic functioning in critical areas (Rahdert, 1991). The critical areas of the POSIT examined in this study are substance use and abuse, physical health, mental health, family relationships, peer relationships, educational status, and aggressive behavior and delinquency. Areas examined by the POSIT are supported in the literature as delinquency risk factors (Catalano & Hawkins, 1995; Hawkins, 1995; Howell, 1998; Loeber & Farrington, 1998; Wilson & Howell, 1993).

<div align="center">Contribution to Social Science Knowledge</div>

In recent decades, juvenile justice reform has become a critical issue with community-based early intervention services highlighted as a means of improving a system over-reliant on secure care detention placement. One example of this over reliance is reflected in state rates of youth in secure facilities. In 1990, the state with the highest rate in the nation reported that 582 juveniles per 100,000 were placed in secure correctional facilities (Trupin, 2006). This over-reliance may not be warranted considering the growing body of well-researched and outcome-based alternatives.

Intermediate sanctions such as community-based supervision, day treatment, and/or short-term community confinement are recommended for first-time serious offenders (Wilson & Howell, 1993). Community-based programs have evidence of being as effective, and, in many cases, more effective then secure correctional confinement in comparison group studies (Alexander et al., 2000; Borduin et al., 1995; Krisberg, Austin, & Steele, 1989; Empey & Erickson, 1972; Empey & Lubeck, 1971; Henggeler, 1992; Henggeler et al., 1993; Palmer, 1971). For example, Multisystemic Therapy is an evidenced-based program delivered in the homes of youth displaying delinquent behaviors and it has been demonstrated to work effectively with the most serious, antisocial, substance abusing, sex offending and or mentally ill offenders

without incarceration or hospitalization by improving the psychosocial functioning of the youth and their families (Borduin et al., 1995; Henggeler, 1992; Henggeler et al., 1993). Similarly, Functional Family Therapy is a cognitive-behavioral prevention and intervention program for high risk youth and their families and has been shown to be effective in reducing recidivism and other associated juvenile offense patterns as compared to traditional probation, residential, or institutionalized services (Alexander et al., 2000; Sexton & Alexander, 2000). For the current study, subjects had participated in a community-based program consistent with descriptions of Balanced and Restorative Justice (BARJ) model of intervention found in the literature. BARJ is described as a model of community justice which places emphasis on holding offenders accountable for harm caused while also enhancing the competency levels of juveniles so that the likelihood of re-offending is decreased (Freivalds, 1996). Community interventions similar to the program studied in this research have been shown to be effective in reducing the likelihood of recidivism. Rodriquez (2007) reported that juveniles in a community-based restorative justice program were less likely than offenders in a comparison group to recidivate. The community-based restorative justice model intervention program participants examined in the current study report a 95% program completion rate and a 9% one-year recidivism rate (YSB Annual Report, 2000). In comparison, the state reported a one-year rate of recidivism of 25% for those discharged from custody of any type (LA Office of Youth Development Performance Indicators presented in HB NO 1, 2004). A five year follow-up of juveniles who left the jurisdiction of the state reported that 44.5% recidivated (LA Office of Youth Development Performance Indicators presented in HB NO 1, 2004). Of those discharged directly from institutions, 66.1% recidivated (LA OYD 2000 Data, 2007).

The current research examines the interrelationships of individual and psychosocial characteristics of first-time youthful offenders at an early level of involvement with the juvenile justice system in a non-urban population. Data from participants in a juvenile justice early intervention program were analyzed in order to describe the population served and to examine how demographic, psychosocial, and contextual (risk/protective factors) variables were associated with level of juvenile justice processing and later recidivism. It was anticipated that a profile of the youth, including risk factors most associated with higher levels of processing and recidivism, might assist in developing approaches to service delivery to intervene at the points of greatest risk. This can provide social workers with a guide for developing effective programs of prevention and early intervention to reduce the possibility of the juveniles re-entering the justice system. Research associated with risk and protective factors as well as developmental pathways for delinquency can afford the field of social work and other juvenile justice service providers an understanding of what variables could place youth at greater risk for developing future delinquent patterns due to certain identifiable individual, social, and system characteristics.

The value in identifying youth at risk was highlighted by Brundage (1984). In developing a system for predicting recidivism, Brundage noted that if recidivist-prone youngsters could be identified early, then steps could be taken from the point of entry into the juvenile justice system to intervene. By examining the files of known recidivists, Brundage created one of the first social profiles of potential recidivists. One limitation of Brudage's work was that it lacked extensive mental health information; however, his work emphasized that the identification and description of youth most at risk in the juvenile justice system has important systemic application in the practices of the juvenile system. Primarily, such information has implications for resource allocation and improved utilization of delinquency intervention programs.

This study will advance research in the area of juvenile justice and delinquency in several ways. This study will add to the growing body of research which to date has primarily focused on large metropolitan samples that are predominantly male. There have been other studies that have attempted to look at the characteristics of youth related to delinquency (Hawkins, 1995; Loeber, Farrington, Petechuk, 2003; Snyder, 2001; Thornberry, Huizinga, & Loeber, 2004). This study builds on many of those constructs, but it differs in notable ways. First, this study offers delinquency data from a large non-urban sample that contains male, female, and racially mixed data on first-time offenders. Lee and Bartkowski (2004) point out that most studies addressing topics on violent juvenile crime have focused on urban areas, neglecting the equally important issue of juvenile crime in non-urban, rural communities. Secondly, the current study focuses on early interventions with a female population receiving the same general program/intervention as their male counterparts. Most female delinquent studies are from detained/incarcerated populations (Acoca & Dedel, 1998; Chesney-Lind & Pasko, 2004; Chesney-Lind & Sheldon, 1998). Females now represent almost eighteen percent of all juvenile arrests for violent offenses and one quarter of all juvenile arrests in the U.S. (Snyder, 2002). From 1980 to 2000 the number of girls arrested for a violent offense rose 61%, a rate of increase more than male arrests during the same period (Snyder, 2002). Overall, this research is critical in understanding the impact of early intervention with youthful first-time offenders informally processed (i.e. pre-adjudication) vs. more traditional formal processing (i.e. post-adjudication) in the juvenile justice system.

This study uses secondary analysis of archival data from a program employing a restorative justice model of intervention. The study focuses on individual and psychosocial characteristics and their association with levels of juvenile justice processing and observations of recidivism. There is no attempt to assess causal relationships between variables, thus hypothesis

testing was not used. The study is intended to be descriptive, thus chi-square and logistic

regression analyses were conducted to explore the relationships and associations between

variables.

This study sought to answer the following research questions:

1. What are the individual and psychosocial characteristics of first-time juvenile offenders

   processed at informal and formal levels of the juvenile justice system?

2. What are the individual and psychosocial characteristics of first-time juvenile offenders

   who recidivate post informal and formal processing?

3. What are the interrelationships among individual and psychosocial characteristics,

   delinquent offenses, level of processing, program intervention, and recidivism in the

   juvenile justice system?

4. What combination of individual and psychosocial characteristics best predicts the level of

   processing a youth receives in the juvenile justice system?

5. What combination of individual and psychosocial characteristics best predicts

   recidivism?

## CHAPTER 2: REVIEW OF THE LITERATURE

Presented in this chapter is a review of the literature relevant to the historical, empirical, and contextual basis of the current study. This study compares and contrasts first-time juvenile offenders enrolled in a community-based intervention program whose cases were processed either informally or formally, and examines empirically- and conceptually-relevant contributors to re-offending. Gender, race, socioeconomic factors, family structure, and how these variables are associated with both level of juvenile justice processing and continued delinquent behavior upon program entry, are of particular interest. Associations among youths' psychosocial risk factors, level of processing, and recidivism rates were explored. To provide the foundation, this literature review describes past research examining the relationship between individual (including gender specific differences) and psychosocial characteristics of youthful offenders and the level of juvenile justice processing as well as juvenile re-offending. First, the prevalence of juvenile offending and re-offending is explored, followed by characteristics of juvenile offenders focusing on age, race and gender. Next, research describing psychosocial risk factors which are reported in the literature as being associated with juvenile offending is examined. This is followed by a review of studies related to causes and correlates found to be associated with the development and escalation of juvenile offending behavior, including re-offending. The chapter continues with a review of the juvenile justice system levels of processing, intervention programs, and the subsequent outcomes. The chapter concludes with a conceptual framework supporting the current study and a discussion of the implications of the literature review, summarizing what is known from previous studies and the gaps in current knowledge.

Prevalence Estimates of Juvenile Offending and Re-offending

Information regarding the prevalence of juvenile crime comes from two general sources. One source is self-report studies whereby youth offer information on their delinquent behaviors based on their memory of events. These self-report studies tend to reflect higher portions of the juvenile population that are involved in delinquent behavior when compared to the second source, official records (Snyder & Sickmund, 2006). Official records, such as arrest data, are limited to the behaviors that are brought to the attention of various juvenile justice agencies; however, many juveniles who commit crimes are never arrested nor brought into contact with a juvenile justice agency (Snyder & Sickmund, 2006). Utilization of official records to capture prevalence information under represents juvenile delinquent behavior, while utilization of self-report studies are limited by youths' age and understanding, willingness to divulge law violations, and acquisition of large enough samples of rare events, such as serious violent offending (Snyder & Sickmund, 2006).

According to the National Longitudinal Survey of Youth (NLSY97), which included a sample of almost 9000 youth ($N = 8984$), just under half reported having committed a theft of less than \$50 ($n = 3863$, 43%), over a third reported vandalizing behavior ($n = 3324$, 37%), and just over a quarter reported having committed an assault with the intent to seriously hurt another person ($n = 2426$, 27%) (Bureau of Labor Statistics, U.S. Department of Labor, 2002). Between 13 and 18% of the youth surveyed also reported running away from home ($n = 1617$, 18%), having sold drugs ($n = 1437$, 16%), having carried a handgun ($n = 1437$, 16%), or committing a theft greater than \$50 ($n = 1168$, 13%) (Bureau of Labor Statistics, U.S. Department of Labor [USDL], 2002). This cohort of nearly 9000 youth who participated in the NLSY97 survey was meant to be nationally representative of non-institutionalized American youth, aged twelve to

sixteen, in 1997 (Bureau of Labor Statistics, USDL, 2002). Participants were asked a wide range of questions regarding many aspects of their lives (e.g. family backgrounds, socio-economic status, health, peer relationships, school experience, etc.), including law violating behavior. Males reported engaging in higher proportions of law violating behavior with the exception of running away from home, which was reported by 20% of the females vs. 17% of the males (Bureau of Labor Statistics, USDL, 2002).

The predominant source for official crime statistics in the literature comes from the U.S. Federal Bureau of Investigation and their annual series *Crime in the United States* (Stahl et al., Puzzanchera, Sladky, Finnegan, Tierney, & Snyder, 2005*).* This series uses two indexes to track arrests. One is the Violent Crime Index and the other is the Property Crime Index. Consistent with the limitations of official reports, these indexes do not contain all violent and property crimes, but do serve as a barometer of criminal activity in the U.S. (Stahl et al., 2005). Violent offenses are defined as rape, robbery, aggravated assault, and homicide (Snyder & Sickmund, 2006). For violent offenses, official records show that of the estimated 1,300 murders in the U.S. in 2002, one in twelve (8%) involved a juvenile (Snyder & Sickmund, 2006).

Of the total delinquency court cases in the U.S. for 2002 ($N$ = 1,615,400), juvenile court records reflect 47,400 (2.93%) aggravated assault cases; 21,500 (1.33%) robbery cases; 4,700 (0.29%) forcible rape cases; and 1,700 (0.11%) criminal homicide cases (Stahl et al., 2005). Other delinquency case counts in juvenile courts in 2002 for crimes other than violent crimes included 624,900 (38.68%) property crime cases (e.g. burglary, larceny-theft, arson, vandalism, trespassing, possession of stolen property, etc.); 409,800 (25.37%) public order offenses (e.g. obstruction of justice, disorderly conduct, weapons offenses, liquor law violations, etc.); 270,000 (16.71%) simple assault cases; and, 193,200 (11.96%) drug law violations (Stahl et al., 2005).

The cases handled in 2002 and the addition of youth who were continued under court jurisdiction from previous years amounted to more than 31 million youth under the jurisdiction of U.S. juvenile courts in 2002 (Stahl et al., 2005). According to Stahl and colleagues (2005), the total delinquency case rate increased 43% between the years 1985 and 1996 and then declined 17% from 1996 to 2002. For the entire period from 1985 to 2002, case rates increased for drug law violations (117%), person offenses (79%), and public order offenses (79%) while declining by 25% for property offenses (Stahl et al., 2005).

In terms of how these cases fared as they engaged the juvenile justice system, a common outcome measure is re-offending, also called recidivism; however, it should be noted that there is no national re-offense rate for juveniles, since it is argued that such a rate would not have much meaning due to wide variations in juvenile justice systems across the states (National Criminal Justice Reference Service, 2007). Re-offending, or recidivism, refers to the repetition of criminal behavior, and may reflect a number of measures of re-offending, including arrest, court referral, conviction, correctional commitment, and correctional status changes within a given period of time (Snyder & Sickmund, 2006). The literature on criminal behavior and recidivism is based on official records so virtually all measures of re-offending underestimate re-offense rates since they only reflect offenses that are brought to the attention of the system (Snyder & Sickmund, 2006). With these limitations in mind, one of the most frequent means for identifying re-offending data in the literature is to turn to specific state studies. The Texas Youth Commission reported in the National Recidivism Methods Study (1997) which encompassed twenty-seven states, that eleven states (41%) measured recidivism by recommitment counts; six states (22%) measured recidivism by re-arrest; five states (19%) measured recidivism by looking at re-incarceration; and three states (11%) measured recidivism via re-adjudication data.

In one of the first large scale studies designed to describe the prevalence of juvenile offending and its association with repeat contact with juvenile court, Snyder (1988) analyzed the court contact of just under seventy thousand youth ($N = 69,504$) in Arizona and Utah as a means to study re-offending. Snyder found that 29% of females and 46% of males who came in contact with the juvenile court were repeat offenders (Snyder, 1988). In this study, the nature of youths' first referral was reported as predictive of future offense as well. Youth were most likely to re-offend if their first referral to court was for burglary, truancy, motor vehicle theft, or robbery (Snyder, 1988). Youth were least likely to re-offend if their first referral to court was for underage drinking, running away, or shoplifting (Snyder, 1988).

A thorough review of re-offending in the recent literature was conducted by the Virginia Department of Juvenile Justice. The Virginia Department of Juvenile Justice (VDJJ) contacted states to collect information on studies of re-offending from across the U.S., and twenty-seven states provided studies from 1991 through 2003 on youth released from state incarceration. The VDJJ analyzed the data from the state studies and made comparisons between the states on factors such as age of juvenile justice jurisdiction, length of follow-up in regard to re-offense, type of offenses considered for recidivism, whether the sample was followed in regard to adult criminal justice involvement, and the operational definition the studies used for determining re-offense (e.g. re-arrest, re-referral to court, reconviction/re-adjudication, or re-incarceration/re-confinement). VDJJ (2003) reported a range of timeframes for reviewing re-offending from as brief as three months to as long as five years, with the majority reporting a twelve month follow-up period. Re-offending was measured by re-arrest in nine states, re-referral to court in two states, reconviction/re-adjudication in thirteen states, and re-incarceration/re-confinement in fifteen states. Seventeen of the twenty-seven sates contacted were able to provide studies on

twelve month re-offense data (VDJJ, 2003). Three states had studies regarding re-arrest post

incarceration release and reported an average rate of 55% recidivism across studies (VDJJ,

2003). Re-arrest was operationally defined as delinquent or criminal offenses in the juvenile or

adult systems. Two states had studies regarding re-referral to court post incarceration release and

reported an average of 45% recidivism across the studies (VDJJ, 2003). Re-referral to court was

operationally defined as delinquent/criminal offenses in the juvenile and adult systems. Eight

states had studies regarding reconviction/re-adjudication post release from incarceration and

reported an average recidivism rate of 33% across studies (VDJJ, 2003). Reconviction/re-

adjudication was defined as delinquent/criminal offenses in the juvenile and adult systems.

Lastly, nine states had studies regarding re-incarceration/ re-confinement within 12-months post

incarceration release. For the states with a definition of recidivism that included all offenses in

the juvenile and adult system leading to re-incarceration/re-confinement, the average rate of

recidivism was 25% across studies (VDJJ, 2003). For the three states that defined re-offending as

delinquent offenses in the juvenile system only leading to re-incarceration/re-confinement, the

average rate of recidivism was 12% across studies (VDJJ, 2003). These post incarceration

recidivism rates tend to be much higher then twelve-month recidivism rates for youth involved in

the probation system. This difference is typically defined by the nature of probation offenders

versus incarcerated offenders, the latter being much more serious offenders (Snyder &

Sickmund, 2006).

In summary, the literature shows that the largest proportions of delinquent acts are for

less serious offenses. Very small numbers of youth are processed through the juvenile justice

system for committing serious crimes. The outcome most associated with juvenile justice system

processing is recidivism, and the measurement of that outcome varies widely with how it is

operationally defined. However, the literature offers that once a youth comes in contact with the formal level of court processing, a large proportion of youth will recidivate.

<u>Characteristics of Juvenile Offenders</u>

The U.S. Federal Bureau of Investigation's Uniformed Crime Report is reported in the Crime in the United States Series and is generally considered nationally representative of crime; however, it should be noted that law enforcement agencies contributing to the dataset on arrests fluctuates (Snyder & Sickmund, 2006). The FBI does not assess the representative nature of the data sample but does report that in 2003 agencies having jurisdiction over 70% of the U.S. population contributed data on arrests (Snyder & Sickmund, 2006).

In 2003, just over 2.2 million ($N = 2,220,300$) youth between the ages of 10 and 17 were arrested in the U.S. (Snyder & Sickmund, 2006). Just under three quarters (71%, $n = 1,576,413$) were male and over one-quarter (29%, $n = 643,887$) were female (Snyder & Sickmund, 2006). Of those arrested, 68% ($n = 1,509,804$) fell between the ages of 16 and 17 and approximately 32% ($n = 710,496$) fell between the ages of 10 and 16 (Snyder & Sickmund, 2006). The race of those arrested was reported as 71% White ($n = 1,576,413$), 27% Black ($n = 599,481$), 2% Asian ($n = 44,406$), and 1% American Indian ($n = 22,203$) (Snyder & Sickmund, 2006). U.S. population figures for that same year reported 33,499,000 youth between the ages of 10 and 17, were 51% male, 49% female, 78% White, 16% Black, 4% Asian, and 1% American Indian (Snyder & Sickmund, 2006).

Males accounted for the majority of all arrests with the exceptions of running away from home, which was 59% female, and arrests for prostitution and commercialized vice, which was 69% female (Snyder & Sickmund, 2006). Consistent with national proportions of race, white youth between the ages of 10 and 17 made up 78% of the U.S. population and the majority of

arrests (71%). However, black youth were reported as 16% of the U.S. population between the

ages of 10 and 17, and were reported in a disproportionate number of juvenile arrests for robbery

(63%), murder (48%), motor vehicle theft (40%), and aggravated assault (38%) (Snyder &

Sickmund, 2006).

Age

There were 31 million youth under juvenile court jurisdiction in the U.S. in 2002 (Stahl et

al., 2005). Approximately 24,800,000 (80%) were between the ages of 10 and 15, approximately

3,720,000 (12%) were age 16, and 2,480,000 (8%) were age 17 (Stahl et al., 2005). Age was also

reported as a significant characteristic in a number of juvenile arrests. There were a reported

1476 arrests for every 100,000 youth ages 10 to 12 in 1980 (Snyder & Sickmund, 2006). By

2003, this arrest rate had declined by 12% (1296 for every 100,000 youth ages 10 to 12). This

general decline in overall arrests for youth under the age of 13 was not consistent across all

offenses. The violent crime index (including the crimes of rape, aggravated assault, robbery and

murder), increased 27% for youth age 10 to 12 between the years 1980 and 2003 (Snyder &

Sickmund, 2006).  Arrests of juveniles ages 10 to 12 were up 91% for aggravated assault, 197%

for simple assault, 138% for weapons violations, 121% for sex offenses, 105% for drug abuse

violations, 116% for disorderly conduct, and 126% for curfew and loitering violations (Snyder &

Sickmund, 2006). The general 12% decline in the arrest rate for offenders under the age of 13

was also not consistent across gender. Although male youth between the ages of 10 and 12 had a

20% decrease in their overall arrest rate between 1980 and 2003, female youth the same age

range saw a 22% increase in their overall arrests (Snyder & Sickmund, 2003). Females ages 10 –

12 outpaced their male counterparts in percentage change in arrests between 1980 and 2003 for

aggravated assault, burglary, larceny-theft, simple assault, stolen property, vandalism, weapons

violations, sex offenses, drug abuse violations, disorderly conduct, curfew violations, and runaway (Snyder & Sickmund, 2006).

In a study designed to describe the prevalence of juvenile offending and its association with repeat contact with juvenile court, Snyder (1988) analyzed the court contact of just under seventy-thousand youth ($N = 69,504$). Age of onset, defined as the age at which a youth is first referred to juvenile court, was shown to be associated with re-referral to the court for re-offense. Snyder found that youth first referred to court between the ages of 9 and 11 had double the re-referrals to court compared to youth who were referred at age fifteen (Snyder, 1988). Snyder also analyzed incidence rates and showed that each age group averaged about one referral every two years, thus concluding that the larger number of re-referrals to court with the younger ages of onset could be explained by the fact that they had more years of court jurisdiction to accumulate additional juvenile court referrals (Snyder, 1988). However, the earlier age of onset youth had a greater likelihood of being referred for a more serious delinquent offense.

Race

A substantial portion of literature explores the variable of race. Results of past research vary from race having no importance in relation to delinquency (Brundage, 1984; Austin, 1978) to race having a sizeable relationship to delinquency (Matseuda & Heimer, 1987). Regardless of this potential debate, what has been established in a number of studies is that race is a significant factor in arrest as well as confinement in the juvenile justice system (Butts, 1996; Butts & DeMuro, 1989; DeMuro & Butts, 1989; Van Vleet & Butts, 1990).

In Butts' (1996) study of arrests, African-American delinquency case rates increased by 65% between 1985 and 1994 while only a 22% increase was reflected for Caucasians during the same time period (Butts, 1996). The problem lies in the contrast. In 1995, black youth

represented about 15% of the US population yet they represented over 25% of all juvenile arrests and 40% of all long-term incarcerations according to Snyder and Sickmund (1999). In 1995, the juvenile population of the United States was 80% Caucasian (including Hispanics), 15% African-American, and 5% other races (Snyder, 1997). Similarly, Snyder and Sickmund (2006) report that in 2003 there were over 2.2 million ($n = 2,220,300$) estimated arrests of persons under the age of eighteen. A breakdown of arrest statistics by race reflect that 71% of those arrested were identified as White, 27% Black, 1% American Indian, and 2% Asian, noting that ethnicity was not recorded and Hispanics were classified racially as White (Snyder & Sickmund, 2006). Snyder and Sickmund (2006) report that the U.S. juvenile population as a whole that same year (2003) was 78% White, 16% Black, 1% American Indian, and 4% Asian. However, looking at specific offenses in the 2003 arrest data, Black youth were involved a disproportionate number of juvenile arrests for robbery (63%), murder (48%), motor vehicle theft (40%), and aggravated assault (38%) (Snyder & Sickmund, 2006).

Gender

According to Snyder and Sickmund (2006), "The female proportion of youth entering the juvenile justice system for law violations has increased" (p. 128). According to the Federal Bureau of Investigation Uniformed Crime Report data, over a quarter (29%, $n = 643,887$) of the juveniles arrested in 2003 were female (Snyder & Sickmund, 2006). This represents an increase in the proportion of female youth entering the juvenile justice system for law violations from 1980 when females represented 20% of all arrests (Snyder & Sickmund, 2006). Some arrest trends show girls progressing at faster rates than boys. Between 1980 and 2003, the largest arrest increases for female juvenile offenders were for violent crime, aggravated assault, simple assault, weapons violations, drug abuse violations, disorderly conduct, and curfew violations (Snyder &

Sickmund, 2006). Specifically, the upward trend is most attributed to substantial increases in arrests for aggravated assault by females (from 15% in 1980 to 24% in 2003) and simple assault by females (from 21% in 1980 to 32% in 2003) (Snyder & Sickmund, 2006).

In summary age, race, and gender are consistent descriptive characteristics throughout the literature. The greatest proportion of juvenile offenders are older adolescents; however, the younger the youth is when first referred for formal court processing, the more likely he or she is to be re-referred for continued and often escalating delinquent behavior. Race and gender differences are shown in types of offenses. Disproportionate minority representation is described in a number of serious crimes, and female offender characteristics are described as trending towards rates of male offending. However, females currently represent a great proportion of less serious, status offenses.

<center>Psychosocial Risk Factors Associated with Juvenile Offending</center>

In youth, the etiology of delinquent behavior is affected by risk factors that increase the risk of further development. Risk factors are defined in the literature as the characteristics, variables, or hazards that, if present for a given individual, make it more likely that the individual, rather than someone selected at random from the general population, will develop a disorder or problem (Arthur et al., 2002; Hawkins, Catalano & Miller, 1992; Mrazek & Haggerty, 1994; Rutter & Garmezy, 1983). Risk factors exist in multiple psychosocial domains, including individual, family, school, peer, and community (Hawkins, 1995; Hawkins, Catalano & Miller, 1992; Howell, 1995). The presence of a risk factor predicts an increased probability of offending, and the likelihood of offending and re-offending is compounded with the presence of multiple risk factors which have a cumulative negative effect (Kazdin et al., 1997). The more

risk factors attributed to a youth, the greater the probability of his/her engaging in delinquent behavior.

Individual Factors

Individual risk factors for delinquent behaviors include rebelliousness, attitudes favorable toward problem behavior, early onset of problem behavior, and constitutional factors (Hawkins, 1995). In review of the literature, this translates to a number of specific factors that have been associated with the development of juvenile delinquency. These individual factors include age, gender, impulsivity, aggressiveness, and substance use (Howell, 1995; National Research Council and Institute of Medicine, 2001). According to Howell (1995), rebellious behaviors are observed in youth who feel disconnected with society and do not want to be bound by its rules. They do not view success for themselves as being responsible within societal norms or rules, and they are observed as acting in an opposite posture (Howell, 1995). Youth who display attitudes favorable towards problem behavior tend to participate in those behaviors, including delinquent acts (Howell, 1995).

Age

Age, as previously discussed, is a common descriptive characteristic of juvenile offending. In the presentation of the literature that follows, age of onset of particular behaviors is also commonly associated as a risk factor in the development of delinquency. Studies of official records of criminal activity by age reveal rates of offending beginning to rise in preadolescence and later falling in late adolescence and young adulthood (Farington, 1986). In a review of three of the major longitudinal studies on the impact of age on delinquency, Thornberry and Krohn (2003) and Thornberry, Huizzinga, and Loeber (2004) summarize the findings from the Denver Youth Study, Pittsburgh Youth Study, and the Rochester Youth Development study. These

studies involve a cumulative sample of over four-thousand youth and examine how long

disruptive behaviors had been apparent in males who were eventually referred to the juvenile

court for a delinquent offense (Thornberry, Huizzinga, & Loeber, 2004). Findings from all three

studies suggest that that moderately serious problem behavior was evident by age 9.5 and

serious delinquent behaviors by age 12, while the average age of first contact with the juvenile

court was 14.5 (Thornberry, Huizzinga, & Loeber, 2004). All three of these studies are examined

in detail below in the material describing causes and correlates, developmental pathways to

delinquency.

Research shows that young people who initiate drug use before the age of 15 have twice

the risk of developing drug problems than those who wait until after the age of 19 (Robins &

Przybeck, 1985). Robins and Przybeck (1985) studied a sample ($n = 640$) of subjects 18 years

and older from three metropolitan areas. The sample was an unweighted and unrepresentative

sub-sample from a larger study sample ($N = 9527$) that was used for their substance abuse

etiology research which was representative in gender, age, and racial composition of the adult

population for those metropolitan areas (Robins & Pryzbeck, 1985). For this sub-sample of six

hundred and forty adults, they found that onset of drug use prior to the age of fifteen ($n = 79$)

was positively correlated with self reports of stealing, vandalism, truancy and arrest (Robins &

Pryzbeck, 1985).

Gender

As with age, gender is a common descriptive characteristic of offending as described

previously. Gender is also shown in the literature to be associated with specific risk for the

development of delinquent behaviors. Juvenile offenders have been shown to possess very

distinct characteristics; however, most studies reflect the perspective of the male offender (Acoca

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& Dedel, 1998). These male-oriented studies are drastically different then what recent research is revealing about the female offender. Female youth populations, unlike their male counterparts, are usually in detention earlier for much less significant offenses than their male counterparts (Acoca, 1999). Most girls arrive in the juvenile justice system through paths marked by sexual and physical abuse, mental illness, substance abuse, family disconnection, and educational problems (Acoca, 1999). The highest percent (36%) of girls in custody in Acoca's (1999) research were probation violators whose first offense was running away, truancy, curfew violation, or some other status offense. According to Acoca (1999), a typical pattern of progression into the juvenile justice system for female youth was a minor delinquent or status offense committed by the youth; the female youth being placed on probation; and any subsequent offense, even another status offense, leading to a violation of a valid court order which then became the vector for greater involvement in the juvenile justice system (Acoca, 1999). Acoca's study reveals that even the more serious female offenders' crimes most often fell into the assault category. However, the assault most often came from non-serious, mutual combative situations with parents (Acoca, 1999).

Common threads in the research on female youthful offenders are abuse, drug use, status offense, probation violation, single parent homes, pregnant or with child, sexually transmitted disease, and chronic health problems (Acoca, 1999, Acoca & Dedel, 1998; Belknap, Holsinger, & Dunn, 1997; Chesney-Lind & Pasko, 2004). Acoca and Dedel's (1998) work included a survey of nearly 200 girls detained in county juvenile halls in California. Fifty-three percent (53%) of the girls interviewed stated that they needed psychological services; 24% reported serious consideration of suicide; and 21% reported being hospitalized in a psychiatric facility on at least one occasion (Acoca & Dedel, 1998). Seventy-five percent (75%) of young women

interviewed reported regular use of drugs, including alcohol which typically began at about age 14 (Acoca & Dedel, 1998). This is consistent with earlier research conducted in the 1980s that describes female experiences of physical, sexual, and emotional violation as the onset of a trajectory into juvenile and criminal justice involvement (Belknap, Holsinger, & Dunn, 1997).

One of the universally shared attributes of adult female prisoners and detained juvenile offenders is a history of violent victimization (Acoca & Austin, 1996; Acoca & Dedel, 1998; Chesney-Lind & Pasko, 2004). Ninety-two percent (92%) of the nearly 200 juvenile female offenders interviewed in the Acoca and Dedel (1998) study reported that they had been subjected to some form of emotional, physical, and/or sexual abuse. Twenty-five (25%) reported being shot or stabbed at least once, and the average age of the girls reporting being beaten, stabbed, shot, or raped was 13 to 14 (Acoca & Dedel, 1998).

Calhoun, Jergens, and Chen's (1993) review of the literature reported that families of female delinquents are more dysfunctional than those of male delinquents. In fact, family fragmentation appears to be a common thread for female youth. Acoca and Dedel's (1998) survey of 200 female youth in California detentions found that ninety-five percent (95%) were assessed as lacking a stable home environment. Fifty-four percent (54%) reported having a mother who had been arrested and/or incarcerated, and 46% reported that their fathers had been locked up at some point (Acoca & Dedel, 1998). Further, 15% of the girls' fathers were locked up at the time of the interview (Acoca & Dedel, 1998). Eighty-three percent (83%) of the young women interviewed who were mothers reported that they had been separated from their infants within the first three months of their children's lives, a pivotal developmental stage (Acoca & Dedel, 1998). Fifty-four percent (54%) of the girls who were mothers had not had a single visit with their child(ren) while in detention or placement (Acoca & Dedel, 1998).

Similar to their male counterparts, academic failure is a frequent experience of delinquent female youth. Failing in school was almost as universal an experience as victimization with girls. Ninety-one percent (91%) reported they had experienced one or more of the following: suspended, expelled, repeating one or more grades, and/or placed in special education (Acoca, 1999).

Unlike their male counterparts, female youth were identified as having many more health issues (Acoca & Dedel, 1998; Carnegie Council on Adolescent Development, 1995). Since 1960, the burden of adolescent illness has shifted from the traditional causes of diseases towards the morbidities associated with health damaging behaviors, such as depression, suicide, alcohol, tobacco, drug use, sexually transmitted diseases, including HIV/AIDS, and gun-related homicides (Carnegie Council on Adolescent Development, 1995). For Acoca and Dedel's (1998) survey sample of nearly 200 female delinquents, 88% reported that they had experienced one or more serious physical health problems; 29% had been pregnant one or more times; 16% had been pregnant while in custody.

Impulsivity

In addition, Hawkins et al. (1998) reviewed several studies and reported "a positive relationship between hyperactivity, concentration or attention problems, impulsivity and risk taking and later violent behavior" (p.113). In a recent study reflecting the association of diagnosable levels of attention deficit and hyperactivity per DSM-IV criteria for ADHD, McCabe et al. (2002) studied 625 adjudicated youth. The average age of the youth was just over sixteen years of age (16.2) and the racially/ethnically diverse sample (19% African American, 12% Asian/Pacific Islander, 30% Hispanic, 29% White, and 9% biracial/other) included both males ($n = 513$) and females ($n = 112$) (McCade et al., 2002). Using a diagnostic self-report tool

(i.e. the Voice DISC-IV), 15% of the males and 21% of the females recorded responses consistent with diagnostic criteria of Attention Deficit Disorder with Hyperactivity (McCade et al., 2002). Other mental health factors reported in this study included 5% of males and 16% of females with an affective disorder (e.g. Major Depressive Disorder, Mania, etc.), 8% males and 15% of females with an anxiety disorder (e.g. Post-Traumatic Stress Disorder, Separation Anxiety, Generalized Anxiety etc.), and 49% of males and 64% of females with any Disruptive Behavior Disorder.

In another study using the same diagnostic tool on a sample of adjudicated youth, Garland et al. (2001) found striking similar results. Garland et al. (2001) studied just under five hundred adjudicated youth who were predominantly male ($N = 478$, females $n = 74$, male $n = 404$). This sample was also racially and ethnically diverse (21% African American, 6% Asian/Pacific Islander, 26% Hispanic, 39% White, 5% mixed race, and 3% other). The study's finding revealed that 13% of the adjudicated youth met the criteria for Attention Deficit Disorder with Hyperactivity (Garland et al., 2001). Other mental health factors reported in this study included 7% with an affective disorder (e.g. Major Depressive Disorder, Mania, etc.), 9% with an anxiety disorder (e.g. Post-Traumatic Stress Disorder, Separation Anxiety, Generalized Anxiety Disorder, etc.), and 48% with any Disruptive Behavior Disorder.

Aggression

Of all the individual factors that that are linked to delinquency, Tremblay and LeMarquand (2001) remarked in their review of the literature that aggression was the best social predictor of delinquent behavior before age 13. Thornberry, Huizinga, and Loeber (2004) report that in both the Denver ($N = 1527$) and Pittsburgh ($N = 1517$) longitudinal youth studies, the majority of youth (85% males and 77% females in Denver and 88% of the males in Pittsburgh)

were involved in some form of physical aggression before age 13, indicating that aggression in childhood is quite common. In closer examination of the level of aggression that is highly associated with juvenile offending, 47% of the males and 28% of the females in the Denver study and 14% of the males in the Pittsburgh study reported levels of assaults that resulted in serious injuries to the victim (Thornberry, Huizinga, & Loeber, 2004). Serious injury was defined as cuts, bleeding wounds, or injuries requiring medical treatment. These two studies are examined further in the *Causes and Correlates* section regarding developmental pathways to offending and re-offending.

Aggression towards people, animals, and property make up nine of the fifteen diagnostic criteria for Conduct Disorder (American Psychiatric Association, 2000). In both McCabe et al. (2002) and Garland et al. (2001) studies described above, Conduct Disorder was found in sizeable portions of the adjudicated juvenile justice samples. McCabe et al. (2002) ($N = 625$, $n = 112$ females and $n = 513$ males) reported that 33% of the males and 38% of the females were assessed as meeting the criteria for Conduct Disorder on self report. Similarly, Garland et al. (2001) ($N = 478$, $n = 74$ females and $n = 404$ males) found that 30% of the sample meet criteria for Conduct Disorder in a self report assessment.

<u>Substance Abuse</u>

Research shows that young people who initiate drug use before the age of 15 have twice the risk of developing drug problems than those who wait until after the age of 19 (Robins & Przybeck, 1985). Robins and Przybeck (1985) studied a sample ($n = 640$) of subjects 18 years and older from three metropolitan areas. The sample was an unweighted and unrepresentative sub-sample from a larger study ($N = 9527$) that was used for their substance abuse etiology research and which was representative in gender, age, and racial composition of the adult

population for those metropolitan areas (Robins & Pryzbeck, 1985). For this sub-sample of six hundred and forty adults, they found that onset of drug use prior to the age of fifteen ($n = 79$) was positively correlated with self reports of stealing, vandalism, truancy and arrest (Robins & Pryzbeck, 1985).

McCabe et al. (2002) determined that Substance Use Disorders were found in large percentages of the adjudicated juvenile justice sample. McCabe et al. (2002) ($N = 625$, $n = 112$ females and $n = 513$ males) reported that 37% of the males and 28% of the females were assessed as meeting the criteria for Substance Use Disorder on self report. The minimum threshold for a substance use disorder in this study was defined by DSM-IV diagnostic criteria for substance abuse, which includes a maladaptive pattern of substance use leading to clinically significant impairment or distress within a twelve month period and includes at least one of the following: 1) recurrent substance use resulting in failure to fulfill major role obligations at work, school, or home; 2) recurrent substance use in situations in which it is physically hazardous; 3) recurring substance-related legal problems; or 4) continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance (American Psychiatric Association, 2000: p. 199).

Family Factors

In the early 1960's and 70's, delinquency and recidivism were often attributed to marital instability, fragmented families, and, what were termed, broken homes (i.e. homes in which separation or divorce had occurred) (Duke & Duke, 1978; Mitchell & Wilson, 1967; Offord, Avrams, Allen, & Paushinsky, 1979). In the 1980's, studies varied from discounting separation and divorce theories and relating delinquency more to the availability of economic resources, to suggesting that the type of broken home may explain specific types of delinquent behavior

(LeFlore, 1988). Dornbusch et al. (1985) analyzed data from a nationally representative sample of nearly 7,000 twelve to seventeen year olds. The study found that adolescents living in single-parent households were more likely to engage in deviant activity (Dornbusch et al., 1985). Deviant activity included truancy, running away from home, smoking cigarettes, school discipline problems, and behaviors that led to contact with law enforcement (Dornbusch et al., 1985).

In a further evolution of the Dornbush study, Steinberg (1987) examined three family structures, specifically, youth living with both natural parents, their mother alone, and with one natural parent and a stepparent. From a sample of 865 adolescents enrolled in grades five through nine and ranging in age from 10 to 15, Steinberg (1987) concluded that they were more vulnerable to delinquent activities than those of two parent households. According to Steinberg (1987), children living with both biological parents were less susceptible to pressure from their friends to engage in deviant behavior than youth in other family structures.

In a meta-analysis of the effects of family structure on juvenile delinquency, Wells and Rankin (1991) reviewed fifty studies that included variables of separation, divorce, and delinquency from as early as 1925 through as recent as 1985, with the majority of studies from the 1960s and 70s. Results yielded that considerable variation existed among the studies in regards to sample characteristics as well as general findings (Wells & Rankin, 1991). Twenty-seven of the original fifty studies reviewed were selected for the meta-analysis with 59% of the studies reflecting black and white racially mixed samples and 41% white only study samples (Wells & Rankin, 1991). The studies contained both male and female youth samples approximately twelve to seventeen years of age (Wells & Rankin, 1991). The effect of intact versus families structures altered by divorce or separation was found to be a consistent pattern of

association, with a bivariate correlation with delinquency of .10 to .15 for phi coefficients, meaning the prevalence of delinquency was 10 to 15 percent higher in what was defined as separated or divorced family structures versus that of intact family structures (Wells & Rankin, 1991).

Johnson (1989) also examined family structure in relation to delinquency looking at general patterns and gender differences and adding a measure of the quality of the parent-child relationship. Johnson (1989) conducted a self-report survey of over seven hundred ($N = 734$) high school sophomores in a large metropolitan area. The sample included a diverse socioeconomic and racial group with approximately equal numbers of males and females (Johnson, 1989). Family structure was defined by five categories classified by the combination of parents residing in the home of the youth. These five categories were real father/real mother ($n = 454$), real father/stepmother ($n = 22$), real father only ($n = 14$), real mother/stepfather ($n = 67$), and real mother only ($n = 115$) and were measured in association with self-reported delinquency (Johnson, 1989). The study also surveyed the youth in regards to the quality of the parent-child relationship. Johnson found that home type was moderately related to self-reported official trouble (i.e. number of school suspensions, non-traffic police apprehensions, and juvenile court appearances the youth reported having experienced) with both male and female youths (Johnson, 1989). Males from families with mothers and step-fathers were described as having a significantly high number of self reported illegal acts then that of the males from other home structures (Johnson, 1989). Both males and female youth from intact families reported lower amount of illegal behavior; however, for males, and exceedingly so for females, the family structures absent of a father were associated with higher rates of self-reported illegal behavior

(Johnson, 1989). Self report of the quality of the family relationship showed no significant

differences for either gender or any of the five family structure types (Johnson, 1989).

Family characteristics such as family management problems, family size, and family

conflict have been described as being associated with risk of delinquency (Derzon & Lipsey,

2000; Hawkins, 1995; Wasserman & Seracini, 2001). Family management problems include lack

of supervision, clear standards or expectations, and severe inconsistent punishment, which have

all been associated with delinquency (Patterson & Dishion, 1985; Farrington, 1991; Kandel &

Andrews, 1987; Peterson et al., 1994; Thornberry, 1994). In a study of 250 boys, it was found

that the strongest predictors of a future violent offense conviction up to age 45 were poor

parental supervision, parental conflict, and parental aggression (McCord, 1979).  Additionally,

some research has shown that youth from families with four or more children have an increased

rate of offending (Wasserman & Seracini, 2001; West & Farrington, 1973). Recognizing that

family structure necessitated further examination of functional complexities, Rosen (1985),

studied family structure and parent-child relationship, quality of marital relationship, family size,

and socioeconomic status in association with delinquency in a survey sample of black ($n = 532$)

and white males ($n = 502$) aged thirteen to fourteen in Philadelphia. Black and white males had

very different outcomes. For black male youth in the study, father-son interaction emerged as the

single most important variable, with boys reporting low levels of involvement with their fathers

having a delinquency rate of 48% compared to 25% for boys with higher levels of father-son

interaction (Rosen, 1985). Family size also emerged as a factor, with male youth who interacted

frequently with their father and whose family included five or more siblings, their likelihood of

delinquency was 35% greater than black youth with fewer siblings (Rosen, 1985). Social class

was also identified as an important factor for male youth reporting low interaction levels with

their fathers. Those youth with low interaction levels with their fathers and lower socioeconomic status had higher rates of delinquency (Rosen, 1985). For white males, social class was the single most important variable, with those reporting a lower socioeconomic class having a higher rate of delinquency (Rosen, 1985). Furthermore, unlike the black males, no single father-son interaction item proved to be significant (Rosen, 1985). As in the case with the black males, larger family size in combination with lower socioeconomic status was associated with delinquency.  Middle socio-economic class white males with a father living in the home had the lowest proportion of delinquency, while lower socioeconomic status male youth with three or more siblings in the home had the highest rate of inclusion in the delinquency group.

School Factors

Children with low academic performance, low commitment to school, and low educational aspirations are at higher risk for delinquency (Herrenkohl et al., 2001). Youths' school experience has been associated with a higher risk for delinquency when youth display persistent antisocial, aggressive behaviors at an early age in the classroom, when youth experience early onset of academic failure, and when youth have a low commitment to receiving education (Hawkins, 1995). Aggressive behaviors in combination with social withdrawal or hyperactivity in Kindergarten, first, and second grades have been associated with a high risk of future delinquency (Loeber, Farrington & Petechuk, 2003; Snyder, 2001). Youth experiencing frequent relocations or even normal transitions between schools (e.g. middle school to junior high) can be at higher risk for delinquent behaviors (Gottfredson, 1988; Hawkins, 1995).

Herrenkohl et al. (2001) in a longitudinal study of youth development and behavior, followed a sample of fifth grade children from Seattle public schools ($N = 808$). The sample was almost evenly split between male ($n = 412$, 51%) and female ($n = 396$, 49%) participants and

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was racially diverse (46% European American, 24% African American, 21% Asian American, and 9% other) (Herrenkohl et al., 2001). Fifty-two percent of the participants reported being involved in the free-school lunch program indicating low socioeconomic status and forty-two percent of participants reported living with a single parent (Herrenkohl et al., 2001). Information gathered from the youth at ten years of age and then analyzed in relation to predictors of violence and delinquency at fourteen years of age, revealed teacher rated hyperactivity and low attention, as well as teacher rated antisocial behavior, and low family income among others had strong persistent effects on later violence. School predictors (e.g. low academic performance, hyperactivity, low attention, and antisocial behavior) and peer predictors (e.g. involvement with antisocial peers) of violence were consistently the strongest mediators of the earlier risk factors with the later measures of violence at age 14.

Peer Group Factors

Youth who have friends who engage in delinquent behaviors are much more likely to succumb to social pressures and commit delinquent acts themselves (Barnes & Welte, 1986; Cairns et al., 1988; Elliott, Huizinga, & Menard, 1989; Farrington, 1991; Hawkins, 1995). This is one of the most consistent predictors identified in the research. Studies have found a consistent relationship between involvement in a delinquent peer group and delinquent behavior (Lipsey & Derzon, 1998; McCord et al., 2001; Steinberg, 1987). According to McCord et al. (2001), adolescent antisocial behavior was associated with peers demonstrating delinquent behavior, peer approval of delinquent behavior, allegiance to such peers, peer pressure towards deviance, and time spent with such peers. As described earlier Steinberg (1987) examined three family structures and their relationship with key delinquency risk factors. In a sample of 865 adolescents aged 10 to 15 years, Steinberg (1987) found that the relationship between the

influences of peers on delinquent behavior is magnified when youth have lower rates of interaction with their parents.

Herrenkohl et al. (2001) in a longitudinal study of youth development and behavior, followed a sample of fifth grade children from Seattle public schools ($N = 808$) as described under *school risk factors* above. School predictors (e.g. low academic performance, hyperactivity, low attention, and antisocial behavior) and peer predictors (e.g. involvement with antisocial peers) of violence were consistently the strongest mediators of the earlier risk factors with the later measures of violence at age 14.

In a recent study of peers and delinquent behavior, Haynie and Osgood (2005) examined 8838 survey respondents participating in the National Longitudinal Study of Adolescent Health which is a nationally representative sample of adolescents in grades seven through twelve. Unlike earlier studies that have relied on self report information regarding peers, this study introduced independent assessment by constructing network based measures of peer relationships (Haynie & Osgood, 2005). The study found that adolescent youth engage in higher rates of delinquency when they have delinquent peers or if their time spent with peers socializing is mostly unstructured (Haynie & Osgood, 2005). The demographic variables of gender, age, race/ethnicity also remained strongly associated with delinquency (Haynie & Osgood, 2005). These outcomes reinforce the position that peer influence is one of the most consistent predictors that research has identified. Even when young people come from well-managed families and do not experience other risk factors, just spending time with friends who engage in problem behaviors greatly increases the risk of that problem developing.

Cause and Correlates of Juvenile Offending and Re-Offending

In much of the emerging literature, juvenile offending and re-offending has been attributed to a series of events common to delinquents with specific typologies, multiple pathways, and different developmental sequences leading to different outcomes (Huizinga, Esbensen, & Weiher, 1991). Siegle (2004) explains that developmental pathways are either based on latent trait theories describing delinquent behavior as controlled by traits present at birth or soon after that remain stable and unchanging throughout the lifetime; or life course view, which describes delinquent behavior as a dynamic process, influenced by individual characteristics as well as social experiences. Latent trait theories tend to be utilized mostly by those interested in the psychological causes of delinquency, where as the life course view tends to be applied by researchers interested in exploring why and when offenders re-offend or desist from offending.

Much of the juvenile justice related research on the developmental pathways for juvenile delinquency comes from a few key sources in the literature. They are the *causes and correlates studies* (Thornberry, Huizinga, & Loeber, 2004), the *life-course persistent and adolescent-limited trajectories* of Moffitt (1993), and the child delinquency works of Loeber, Farrington, and Petechuk (2003). This information has been shown to be of value in describing known influences on delinquency in male juvenile justice populations.

In the causes and correlates studies, data were gathered in three longitudinal research projects that began in 1987 in Denver, Pittsburgh, and Rochester from a combined sample size of approximately 4000 youth (Thornberry, Huizinga, & Loeber, 2004). These youth, their caretakers, and their teachers were interviewed annually and the findings were reported regarding descriptions of the population, age of onset of delinquent behavior, and the

development of delinquency over time. The purpose of these studies was to identify social conditions, personal characteristics, social interactions, and developmental processes which could be causally linked to the initiation, maintenance, and termination of delinquent and other problem behavior (Huizinga, Esbensen, & Weiher, 1991). Below is an in depth examination of the characteristics of all three studies.

Denver Youth Survey

The Denver Youth Survey was conducted on a probability sample of households selected by population, housing characteristics, and high official crime rates in high-risk neighborhoods (Huizinga, Esbensen, & Weiher, 1991). The sample included just over 1500 youth ($N = 1527$) who at the initiation of the survey in 1987 were ages seven, nine, eleven, thirteen, or fifteen who lived in one of the more than twenty-thousand randomly selected households (Huizinga, Esbensen, & Weiher, 1991). The sample consisted of males ($n = 806$) and females ($n = 721$), who with their primary caretaker(s) have been interviewed in waves since 1988 (Thornberry, Huizinga, & Loeber, 2004). The first wave of annual interviewing was between 1988 and 1992, the second wave from 1995 to 1999, and the third wave started in 2003 (Thornberry, Huizinga, & Loeber, 2004). The sample was approximately one third African American (33%), almost half Latinos (45%), ten-percent White, and twelve-percent other ethnic groups (Thornberry, Huizinga, & Loeber, 2004).

Pittsburgh Youth Study

The Pittsburgh Youth Study began with a sample of just over 1500 males ($N = 1517$). Between 1987 and 1988, initial screening assessments of problem behaviors were administered to the first, fourth, and seventh grades of the Pittsburgh public school system (Thornberry, Huizinga, & Loeber, 2004). The assessment of problem behaviors was used to determine the

highest risk youth in each grade (scoring in the upper 30<sup>th</sup> percentile on the initial assessment of problem behaviors); youth from this high risk group and the remaining lower scoring 70% were subjected to random selection resulting in two groups of approximately 250 males for each grade (Thornberry, Huizinga, & Loeber, 2004). The final sample was approximately fifteen hundred youth ($n = 500$ youth from each of the three grades) (Loeber, Stouthamer-Loeber, Van Kammen, & Farrington, 1991). The subjects were racially mixed, with about half of the male youth reported as African-American and half Caucasian (Loeber et al., 1991). Four in ten (40%) male youth lived with a single parent, and just under half of the parents (between 36% and 47%) were on welfare. The youth, the youth's primary caretaker(s), and teachers were interviewed every six months for the first five years of the study and have been interviewed annually since (Thornberry, Huizinga, & Loeber, 2004).

Rochester Youth Development Study

Just under a thousand youth formed the sample of male ($n = 729$) and female ($n = 271$) subjects ages thirteen and fourteen for the Rochester Youth Development Study (Thornberry, Huizinga, & Loeber, 2004). The sample was derived from seventh and eighth grades in the public schools of Rochester in 1988. The racial composition was 68% African American, 17% Hispanic, and 15% White (Thornberry, Huizinga, & Loeber, 2004). Subjects were initially interviewed every six months for the first four and a half years, and have been interviewed annually since (Thornberry, Huizinga, & Loeber, 2004).

The findings of all three studies suggest that involvement in aggression during childhood was common for the vast majority of youth surveyed (Thornberry, Huizinga, & Loeber, 2004). The researchers caution that much of this aggression, including associated delinquency, is limited to childhood; however, approximately half of the youth who reported these behaviors

maintained some level of aggression into early adolescence (Thornberry, Huizinga, & Loeber, 2004). The researchers categorized the onset of aggression into minor aggression, physical fights, and other violence (e.g. robbery) and formulated from the results three developmental pathways toward more serious delinquency. These developmental pathways include authority conflict pathway, covert pathway, and overt pathway (Thornberry, Huizinga, & Loeber, 2004).

Developmental Pathways

Thornberry, Huizinga, and Loeber (2004) describe the authority conflict pathway as having the earliest age of onset and the most overlap with the other two pathways. It has its beginnings with what is noted as stubborn behavior before age 12. This progresses to specific acts of defiance and disobedience. This progresses as the youth gets into early/mid adolescence to an avoidance of authority. Behaviors such as truancy and running away are common as the youth continue into one or both the other pathways by mid/late adolescence including acts of fighting and moderate to serious delinquency (Thornberry, Huizinga, & Loeber, 2004).

The covert pathway identified by Thornberry, Huizinga, and Loeber (2004) is characterized by an age of onset of 15 years or earlier. The first behaviors demonstrated are minor and covert such as shoplifting or chronic lying. These progress into property damage and then moderate delinquency such as stealing and fraud (e.g. check writing, credit card theft, etc.). These culminate in late adolescence to serious delinquency such as auto theft, robbery, and burglary (Thornberry, Huizinga, & Loeber, 2004).

The third pathway, the overt pathway, starts with minor aggression (e.g. bullying) and moves to fighting. This includes physical assaults and gang related fighting. This pathway culminates in violence by late adolescence including such acts as battery and even rape and murder (Thornberry, Huizinga, & Loeber, 2004).

The causes and correlates studies were able to consistently describe an early age of onset of problem behaviors or delinquency to be associated with escalation to more serious behaviors in all three of the pathways (Thornberry, Huizinga, & Loeber, 2004). For example, in the Pittsburgh Youth Study, initiation of offending in the youngest samples ages 7 and 8 and ages 10 and 11, were most often found to experience an escalation in offense seriousness while the thirteen and fourteen year olds demonstrated higher rates of desistance in delinquent behavior (Loeber, et al., 1991).

All three studies confirmed earlier identified psychosocial risk factors as correlates to initiation of offending. These included physical aggression, attention deficit/hyperactivity, truancy, and poor caretaker-child relationships (Loeber et al., 1991; Thornberry, Huizinga, & Loeber, 2004). The studies also explored further the correlates of escalation of offending and re-offending behavior. The correlates of escalation were described as male youths' low school functioning, drug use, physical aggression, covert acts such as lying and shoplifting, higher conflict with caretakers, and attitudes showing acceptance of deviant behavior (Loeber et al., 1991; Thornberry, Huizinga, & Loeber, 2004). Of specific note, drug use, school problems, and mental health problems were strong risk factors for involvement in persistent and serious delinquency, with more than half (ranging from 55% to 73%) of the male subjects in all three studies with two or more of these problems being categorized as persistent and serious offenders (Thornberry, Huizinga, & Loeber, 2004). At closer examination of the subset of youth in the Denver study who were known to have been arrested, 69% reported one or more of the drug, school, or mental health problems, whereas only a little over a third (37%) of those not arrested had reported such problems (Thornberry, Huizinga, & Loeber, 2004). These findings were only

consistent in the male subjects as there were too few persistent serious offenders among the female subjects (Thornberry, Huizinga, & Loeber, 2004).

Unlike the multiple pathways and overlapping pathway models of the causes and correlates studies, Moffitt (1993) argues that there are two main trajectories in the development of delinquency. Moffitt's (1993) findings are based on her longitudinal investigation of a representative cohort of just over one thousand ($N = 1037$) New Zealand children born in 1972-1973. A subset (5%) of this all male sample was identified as possessing a high rate of antisocial behaviors over the course of biannual assessments of the entire sample (Moffitt, 1993). The assessments included information collected from the youths' parents and teachers as well as the youth themselves.

Moffitt's (1993) empirical research on conduct disorder and persistent antisocial behavior suggests that both of these can be detected early in life by examining traits in the preschool years and the influence of peer group deviant behavior in the adolescent years. The two trajectories Moffitt identifies are life-course persistent offenders and adolescent limited offenders. These two trajectories have unique causal explanations and are primarily explained by age of onset and specific conduct problems. Life-course persistent offender models, accounting for five to ten percent of the male juvenile offender population, were predicted by DSM-IV conduct disorder: childhood-onset type; minor aggression, lying, hurting animals, biting and hitting by age four; peer rejection; lower cognitive abilities and slower language development; and neurological problems: attention deficit or hyperactivity (Moffitt, 1993). Adolescent limited offenders, accounting for the majority of the juvenile offender sample which stop offending by age 18, were predicted by DSM-IV conduct disorder: adolescent onset type; and serious aggression, stealing,

running away, truancy, and breaking and entering; and little to no problems with peer rejection (Moffitt, 1993).

Loeber, Farrington, and Petechuk (2003) performed a review of twenty studies of early onset of delinquent behaviors as well as official records of child delinquency in the Federal Bureau of Investigation's Uniform Crime Reports. They describe that in chronic delinquency, the vast majority of youth had their first referral for a delinquent charge at an average of about age 9 with four or more referrals by age 17. These youth were described as more likely to be chronic offenders, but they were also more likely than older onset delinquents to commit more serious and even violent crimes (Loeber, Farrington, & Petechuk, 2003). Prior to these youth being considered child delinquents, they were observed in the studies as children with persistent disruptive behavior (Loeber, Farrington, & Petechuk, 2003). Research suggests that as early as pre-school, youth who will progress into delinquent behaviors are observed with aggressive attention-seeking behaviors (Loeber, Farrington, & Petechuk, 2003). This information is to be considered with caution since research also suggests that the majority of youth with these problems don't necessarily progress into delinquent paths (Loeber, Farrington, & Petechuk, 2003; Moffitt, 1993). Loeber, Farrington, and Petechuk (2003) highlight temperament, low attachment, and language problems as factors influencing antisocial behavior in preschool. Temperament factors include a chronic presence of anger and emotional dysregulation. Low attachment is specifically associated with a lack of bonding with caregivers, particularly mothers. Lastly, language problems appear to be key in that any lag impedes social development and increases a child's frustration since this is the primary link to parents and the social world of the school setting (Loeber, Farrington, & Petechuk, 2003).

The various developmental pathways described here account for the majority of youth who commit the most serious acts of delinquency. As mentioned earlier, it is not uncommon for youth to progress through multiple pathways as they mature. What the pathways do offer is some guide for intervention once behaviors noted in the early onset of any of the paths is observed. In all these developmental theorists' models, aggression consistently appears to be the best predictor of delinquency up to age 12. An earlier age of onset was the most significant predictor of progression in all the more severe delinquent trajectories or pathways described.

In summary, the literature shows a number of psychosocial risk factors associated with offending as well as causes and correlates related to re-offending. Risk for developing delinquent behaviors exists in multiple domains including individual, family, school, and peer associations. Individual characteristics such as early age of onset of aggression, being male, abusing substances, and impulsivity all are cumulative factors placing youth at increasing risk of offending and re-offending. Family factors associated with the parent configurations defined by divorce and single parenting, high conflict in the home, larger family size, and lower family income are also characteristics placing youth are increasing risk of juvenile offending. Failure in school as well as association with peers who are delinquent all have compounding effects that increase risk of offending according to the literature. The higher the prevalence of any of these risk factors, the greater the risk for juvenile delinquent behavior. Any combination of these factors may also be causally linked to the maintenance and development of further delinquency. Studies show that for males early age of onset, drug use, school problems, and mental health problems are among the strongest predictors of persistent delinquent behaviors. For females, consistent patterns for the development of re-offending behavior are much less defined.

Juvenile Justice Processing, Interventions, and Outcomes

The Juvenile Court was created in 1899 and was founded on the belief that children are inherently different from adults and that the state should take responsibility for protecting and rehabilitating young offenders (Butts & Harrell, 1998). Initially the focus of the juvenile court was on rehabilitation of the offender and not on the offense and associated punishment. Juvenile crimes were handled in juvenile courts with rare exceptions, and the courts tended to be flexible and informal with a range of dispositional options related to the child's situation being available to the judge (Butts & Harrell, 1998; National Research Council and Institute of Medicine, 2001). This changed dramatically in the 1950s and 60s as public concern mounted regarding the lack of effectiveness of the juvenile justice system (Butts & Harrell, 1998). In response, the U.S. Supreme Court rendered a series of decisions that formalized juvenile proceedings and created a much more adult criminal court-like environment (Butts & Harrell, 1998; National Research Council and Institute of Medicine, 2001). Differences between juvenile and adult criminal court systems rapidly faded.

By the 1990s, a get tough on crime philosophy was widely accepted and more punitive laws, including mandatory sentencing, automatic waivers to adult court, and an increasing emphasis on punishment rather than rehabilitation had accelerated to all time highs since the inception of juvenile justice system (Butts & Harrell, 1998; National Research Council and Institute of Medicine, 2001). Much of this was spurred on by a statistical anomaly in the 90s when there was a substantial spike in violent juvenile crime rates. Juvenile violent crime rates rose to the highest rate of recorded official arrest and court records between 1993 and 1995 (Snyder & Sickmund, 2006). In some jurisdictions, juvenile homicide rates increased by more than 200% (VanVleet, 1999). As juvenile crime increased during the 90s, the juvenile justice

system came under unprecedented scrutiny and criticism for its perceived inability to respond to this increase and to provide interventions that might thwart juvenile crime (VanVleet, 1999). A number of states looked at ways to change juvenile proceedings. Butts and Harrell (1998) describe a vote on Proposition 102 permitting lawmakers to abolish the juvenile court in Arizona which passed with 63% approval by the voting public in 1996. This is not an isolated incident as Idaho, Michigan, Virginia, Massachusetts, South Carolina, Texas and Minnesota moved in a similar direction (Butts & Harrell, 1998).

While some called for the complete shutdown of the juvenile system, some found hope in a get-tough on crime approach that typically took the form of jails and/or boot camps. Formal adjudication, physical exercise, and discipline became the hope and a welcome relief from the perceived softness of the juvenile system (Butts & Harrell, 1998; VanVleet, 1999). Between 1985 and 2004, the number of formally process delinquency cases increased 80% in comparison to the number of delinquency cases that were handled informally which rose only 15% (OJJDP, 2007c). Informal case handling is defined as non-petitioned cases whereby duly authorized juvenile justice system personnel (e.g. judges, referees, probation officers, district attorneys, other agencies statutorily designated to conduct screening for juvenile court, etc), having screened the case, decide not to file a formal petition and may refer the youth to some other lesser non-court related intervention (Stahl et al., 2005). Formal handing is defined by Stahl et al. (2005) as cases petitioned to appear on an official court calendar in response to the filing of a complaint or other legal document requesting the court to adjudicate a youth as a delinquent, status offender, dependent child or to waive juvenile jurisdiction and transfer a youth to criminal court for processing as an adult criminal offender.

Currently, overall arrests are down, but some of the highest arrest rate increases for

juveniles are in violence, aggravated assault, simple assault, weapons violations, sex offenses,

drug abuse violations, disorderly conduct, and curfew and loitering law violations (Snyder &

Sickmund, 2006). According to Snyder and Sickmund (2006) the violent crime index arrest rate

increased 27% for juveniles between 1980 and 2003. In review of the estimated 1.6 million

delinquency cases ($N = 1,615,400$) in 2002, Stahl et al. (2005) reported 58% ($n = 934,900$) were

petitioned for formal processing, and 42% ($n = 680,500$) were not petitioned. Of those petitioned

for formal processing over half (67%, $n = 634,500$) were adjudicated delinquent, under a third

were not adjudicated delinquent (32%, $n = 303,300$), and a very small minority were waived to

adult criminal court (1%, $n = 7,100$) (Stahl et al., 2005). Of the cases that were adjudicated

delinquent ($n = 624,500$), the majority were placed on probation (62%, $n = 385,400$), almost a

quarter (23%, $n = 144,000$) were placed in placed in outside their home in a secure or non-secure

residential setting, 14% ($n = 85,000$) received some other sanction, and a very small minority

(2%, $n = 10,000$) were released as adjudicated without further intervention (Stahl et al., 2005).

Of the delinquency cases not petitioned (42%, $n = 680,500$), just over a third (39%, $n = 263,400$)

were dismissed, a little under a third (31%, $n = 210,300$) received some form of informal

probation, and just under a third (30%, $n = 206,900$) received other sanctions or referrals (Stahl

et al., 2005). Overall females were petitioned less to formal court proceedings (540 per 1,000

cases vs. 626 per 1,000 cases for males) and were handled informally at a higher rate (460 per

1,000 vs. 374 per 1,000 for males) (Stahl et al., 2005). Black youth were petitioned for formal

court proceedings at higher rates than white males (661 per 1,000 cases for black males

petitioned vs. 567 per 1,000 cases for white males) (Stahl et al., 2005). Caution should be taken

with these results since none of these formal or informal processing rates controlled for

differences in offense seriousness, criminal histories, and other risks factors related to

delinquency (Stahl et al., 2005; Snyder & Sickmund, 2006).

In studies that do take into account differences in offense, gender and race, juvenile

justice processing differences have been reported. In an examination of gender bias in the

handling of juvenile court cases in Hawaii, a series of analyses indicated differences between

how male and female cases were processed, particularly for minority youth. In this study,

MacDonald and Chesney-Lind (2001) found that female juvenile offenders were more likely

than their male counterparts to be handled informally at the preliminary stages of juvenile justice

system processing; however, this leniency was observed to decline as the female offenders

moved into the dispositional stages of formal processing.

Levels of Juvenile Justice Processing and Outcomes

Smith and Paternoster (1990) examined data from the Florida Department of Health and

Rehabilitative Services where all complaints in the State are screened and decisions are made

regarding level of processing. The sample included just over 1500 youth referred to formal

processing and court ($n = 1544$) and just over 1600 youth referred to an informal process

($n = 1636$). The sample was predominantly male (80%) with an average age of 14.7 years (Smith

& Paternoster, 1990). Just over a quarter (27%) of the sample was reported as Black. Smith and

Paternoster (1990) found that Black, male, and older youth had higher rates of recidivism and

those with prior offenses also had higher rates of re-offending. Controlling for all of these

factors, Smith and Paternoster (1990) reported that those recommended for formal juvenile court

processing were significantly more delinquent during the one year follow-up period.

Snyder (1988) analyzed the court involvement of 69,504 youth, ages ten to seventeen,

and found that the rate of re-referral to juvenile court varies with age and the likelihood of re-

referral increases with the number of prior juvenile court contacts. Overall, six out of every ten

juveniles who had been referred to the juvenile courts were identified to have returned to

juvenile courts by the time they turned 18 (Snyder 1988). This is compared with juveniles who

had no prior referral to the juvenile court, where four out of every ten (41%) returned to court

after the initial contact (Snyder, 1988). Age also impacts the referral to court. For youth age ten

to fourteen with one prior referral to court, more than three quarters returned to juvenile court

(age 10 = 84%; age 11 = 85%; age 12 = 83%; age13 = 82%; age 14 = 77%) (Snyder,1988). This

trend continues downward for seventeen year olds with one prior court contact noted as re-

referred to court in 27% of the cases (Snyder, 1988). The upward trend in re-offending with

every contact with the court system as well as the increase rate for younger offenders argues a

need for early intervention.

In contrast to these findings, a thorough overview and rationale for developing informal

processes and programs that support diversion practices is given by Reker, Cote and Peacock

(1980). They cite adverse results of labeling youth offenders as criminals as a just cause for

avoiding prosecution, as well as the time delays and personal abuses of the justice system. These

authors also stress the importance of community responsibility for the restitution and renewed

acceptance of the offender as a citizen.

Informal processing, also called diversion in much of the literature, refers to the practice

of diverting youth from the juvenile justice system (i.e. pre-adjudicatory) and shifting the

responsibility of handling them to either social control institutions such as family or schools, or

to community based services (Mulvey, Arthur, & Reppucci, 1992). The focus of such efforts is

to minimize the number of juveniles who proceed further into the juvenile system once they have

first entered it. Most informal processing is done by police, with only a small portion of police

contacts with juveniles ever resulting in an arrest and further processing (Siegal & Senna, 1991).

Arguments both for and against the implementation of informal processes have been raised.

In a longitudinal study of programs that received referrals as an informal processing measure, Davidson et al. (1987) examined juveniles ($N = 213$) accused of delinquent acts and status offenses. Davidson, et al. (1987) study results support the effectiveness of informal processing and intervention at reducing recidivism rates for up to two years following the intervention. Intervention models located outside the formal juvenile justice system produced lower recidivism rates than interventions affiliated with formal processing within the juvenile justice system. Similarly, Regoli, Wilderman, and Pogrebin (1985) studied diversionary practices affiliated with informal processing in Colorado and found significant decreases in recidivism rates. In another study by the National Center for Juvenile Justice, a review of data from the National Juvenile Court Data Archive, found that for robbery, assault, burglary, theft, and vandalism cases in Utah, that were handled informally (without disposition) recidivated at a rate of 11% while those who received formal processing and disposition from the court recidivated at a rate of 18% (Butts & Snyder, 1992).

However, not all studies support informal processing as a successful option in addressing delinquency. Brown et al. (1991) showed that those youth who were not adjudicated at the time of their first referral to juvenile justice system were more than twice as likely to go to prison as an adult. Further, two large meta-analyses of level of processing yielded little to no support for informal processing. Gensheimer and Associates (1986) analyzed 103 studies of informal processing by the juvenile justice system for first-time, minor offenders. In the majority of these diversion practices, the youth was counseled to desist delinquent behavior and attend certain treatment programming and perform community service (Gensheimer and Associates, 1986).

The findings of the analysis showed there was not substantial evidence for the efficacy of diversion practices, and that informal processing interventions produced no strong positive or strong negative effects with youth diverted from the juvenile justice system (Gensheimer and Associates, 1986). One characteristic that did emerge in the meta-analysis was that the younger the informally processed client, the more likely the intervention would have a positive effect (Gensheimer and Associates, 1986). In another meta-analysis, Whitehead and Lab (1989) reviewed studies of intervention programs linked to informal and formal justice processing practices. Those programs operating as an extension of the formal justice system were found to be the most effective. They suggested that this result may be linked to a deterrent value not associated with programs operating informally, or outside the formal justice system (Whitehead & Lab, 1989).

Intervention Programs and Outcomes

In one of the most comprehensive reviews of juvenile justice interventions programs to date, Lipsey (1999) studied evaluations of 117 programs for non-institutionalized juvenile offenders and on average found that the best programs reduced recidivism by about forty percent. The best types of interventions for reducing recidivism with non-institutionalized youth were identified as individual counseling, interpersonal skills training, behavioral programs, and interventions that involved multiple services (Lipsey, 1999). Lipsey (1999) offered that the program profiles associated with the largest effect on recidivism include both thorough implementation of the program so that youth receive a full dose of the intervention and program duration of more than six months. In another meta-analysis, Lipsey and Wilson's (1997) showed typical juvenile justice programs reducing recidivism by 12%, with the best programs reducing recidivism by as much as 44%.

Recidivism is an outcome measure frequently used in the juvenile justice system with the limitation that re-arrests and new adjudications reflect only those offenses that are brought to the attention of the system (Snyder & Sickmund, 2006). The appropriateness of using recidivism as a sole criteria for defining a successful outcome has been questioned in light of empirically tested interventions that target psychosocial factors other than re-arrest. For example, Multisystemic Therapy is an evidenced-based program delivered in the homes of youth displaying delinquent behaviors and has been shown to be effective with the most serious, antisocial, substance abusing, sex offending and/or mentally ill offenders without incarceration or hospitalization by demonstrating improvement in the psychosocial functioning of the youth and their families (Borduin et al., 1995; Henggeler, 1992; Henggeler et al., 1993). Similarly, Functional Family Therapy is a cognitive-behavioral prevention and intervention program for high risk youth and their families and has been shown to be effective in not only reducing recidivism but also the cost of treating youth and their families compared to traditional services and other interventions (e.g. incarceration, hospitalization) (Alexander et al., 2000; Aos, Barnoski, & Lieb, 1998). From an overall rehabilitation perspective, Functional Family Therapy has been shown to be effective in addressing delinquency risk factors such as poor parenting skills, poor relationships with school and community, and low social support and supervision while increasing motivation to change, family communication, positive parenting skills, and compliance with maintaining and generalizing behavioral change (Sexton & Alexander, 2000).

Nevertheless, recidivism continues to be used in the juvenile justice literature as one of the most important criteria for success (Beck, Hevener, Calhoun, Katzenelson, & More, 2007; Lipsey, 1999; Snyder & Sickmund, 2006). This measure of success is relevant to the Balanced and Restorative Justice (BARJ) model. A number of juvenile justice systems in the U.S. have

adopted the BARJ model. According to Frievalds (1996), this model had been implemented in at

least twenty-four states as of 1995. BARJ is described as a model of community justice that

seeks to involve victims, offenders, and communities as co-participants in the justice process

(Frievalds, 1996). This approach is a model for balancing sanctioning, public safety, and the

rehabilitative needs of communities (Freivalds, 1996). BARJ places emphasis on holding

offenders accountable for harm caused while also enhancing the competency levels of juveniles

so that the likelihood of re-offending is decreased (Freivalds, 1996). This type of community-

based intervention has been shown to be effective in reducing the likelihood of recidivism.

Rodriquez (2007) reported that juveniles in a community-based restorative justice program were

.704 times (exp[-.350]) less likely than offenders in a comparison group to recidivate.

<div align="center">Conceptual Framework</div>

The review of the literature on the juvenile offending population, risk of offending and

re-offending, the developmental pathways of re-offending, the juvenile justice system's early

responses to such behaviors, and the associated outcomes provides the historical, empirical, and

contextual foundation from which to examine first-time juvenile offenders enrolled in a

community-based intervention program whose cases were processed either informally or

formally in addition to examining the relevant contributors and predictors of re-offending.

Gender, race, socioeconomic factors, family structure, and how these variables are associated

with both level of juvenile justice processing and continued delinquent behavior upon program

entry, are of particular interest. Associations among youths' psychosocial risk factors, level of

processing, and recidivism rates are also explored in the current study. With this context in mind,

a conceptual perspective on the association and predictive ability of psychosocial risk factors

from both the public health risk model and the developmental theory of offending and re-

<div align="center">60</div>

offending will be further elaborated in order to provide a theoretical foundation in support of the study. Both the public health risk model and the developmental theory model support an examination of the interrelationships of individual and psychosocial characteristics of first-time youthful offenders at an early level of involvement with the juvenile justice system. The developmental pathways theory support further examination of characteristics shown to be associated with re-offending patterns.

<u>Public Health Risk Model</u>

Examining specific psychosocial risk for delinquency through the public health risk model was largely developed through the work of Catalano and Miller (1992) and Hawkins, Catalano and Miller (1992). The public health risk factors model has been used to explore associations between the variables age, race, gender and delinquency (Acoca & Dedel, 1998; Butts, 1996; Chesney-Lind & Pasko, 2004; Thornberry, Huizzinga, & Loeber, 2004; Van Vleet & Butts, 1990). The model has also been used to explore the delinquency risk factors associated with family structure, relationships, socioeconomic status, and size (Johnson,1989; Rosen, 1985; Steinberg, 1987; Wasserman & Seracini, 2001; Wells & Rankin, 1991). Hawkins (1995) employs the use of the public health risk model to describe education experience and progression into delinquency. Furthermore the model has been used to examine psychosocial risk factors such as physical health, peer relationships, substance abuse, mental health, aggression and their association and prediction of juvenile offending (Acoca & Dedel, 1998; Garland et al., 2001; Haynie & Osgood, 2005; Lipsey and Derzon, 1998; McCabe et al., 2002; McCord et al., 2001; Thornberry, Huizzinga, & Loeber, 2004). The presence of a risk factor predicts an increased probability of offending, and the likelihood of offending and re-offending is compounded with the presence of multiple risk factors which have a cumulative negative effect (Kazdin et al.,

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1997). The more risk factors attributed to a youth, the greater the probability of their engaging in delinquent behavior. In summary, the public health risk model offers a predictive description of population at risk and it provides recommendations on where to interrupt the progression of the problem. The evidence suggests that decreasing delinquency risk factors is effective for preventing and intervening in juvenile delinquent behavior (Hawkins & Catalano, 1992).

Risk factor models have problems and limitations. One of the primary problems is in the broad definition of each of the risk factors and its associated causes (Farrington, 2000). Another problem is that a number of the risk factors cannot be easily targeted for change (e.g. low socioeconomic status) and are outside the scope of most juvenile justice system interventions (Shader, 2003). The literature reflects strong limitations in describing and predicting delinquency in girls (Acoca, 1999; Acoca & Dedel, 1998; Chesney-Lind & Pasko, 2004, Thornberry, Huizinga, & Loeber, 2004). Further, all of these prominent studies on psychosocial risk factors associated with juvenile offending in the literature are based primarily on male samples from large metropolitan areas.

Developmental Theory Model

Developmental theory has been utilized in juvenile justice literature to explain youthful offending and subsequent re-offending as being the result of a series of events common to delinquents with specific typologies, multiple pathways, and different developmental sequences leading to different outcomes (Huizinga, Esbensen, & Weiher, 1991). Developmental theory has been used to define models which describe age of first-offense, variables associated with the type of offense and re-offending, aggression factors, and mental health risk issues (Loeber, Farrington, & Petechuk, 2003; Moffitt, 1993; Thornberry, Huizinga, & Loeber, 2004). Studies applying the developmental theory identify social conditions, personal characteristics, social

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interactions, and developmental processes which could be causally linked to the initiation, maintenance, and termination of delinquent and other problem behavior (Huizinga, Esbensen, & Weiher, 1991)

The developmental pathways described by Thornberry, Huizinga, and Loeber, (2004) and developmental trajectories described by Moffitt (1993) through their use of longitudinal research have been used to predict placement of male youth in the cohort of juvenile offenders that are found to commit the most serious acts of delinquency. Studies by Loeber et al. (1991) and Thornberry, Huizinga, and Loeber (2004) support the association of psychosocial risk factors such as age, aggression, mental health (specifically attention deficit and hyperactivity), educational problems (e.g. low school functioning, truancy), drug use, and poor caretaker-child relationships (e.g. conflict with caretakers), and delinquent peer association at the onset and persistence of juvenile offending in male subjects over time. In all the developmental theory models, aggression consistently emerges as the best predictor of delinquency up to age 12. An earlier age of onset was the most significant predictor of progression in all the more severe delinquent trajectories or pathways described. These developmental theories of juvenile offending and re-offending offer insight for intervention once behaviors noted in the early onset of any of the paths are observed.

The limitation of developmental theory applied in studies of juvenile offending and re-offending is that pathways have been consistently observed and reported only for male youth. Female offenders varied more and have not yet been described in such orderly progressions and sample sizes of chronic, serious offenders have been insufficient for reliable analysis (Moffitt, 1993; Thornberry, Huizinga, & Loeber). Similar to the study of psychosocial risk factors in the

public health model, the sentinel studies applying developmental theory have relied largely on predominantly male samples from large metropolitan areas.

## Implications of the Literature Review

The review of the literature for this investigation has focused on five broad areas related to juvenile offending and re-offending. These areas include prevalence estimates of juvenile offending and re-offending, characteristics of juvenile offenders, psychosocial risk factors associated with juvenile offending, causes and correlates of juvenile offending and re-offending, and juvenile justice processing, interventions, and outcomes. Each of these areas is summarized in this section. The implications of the literature review are then discussed, and key terms are identified and defined.

### Prevalence Estimates of Juvenile Offending and Re-Offending

The literature regarding the prevalence of juvenile offending and re-offending is extensive with a host of well defined national datasets maintained and routinely reported. The majority of this data is reported from either self-report survey information or official arrest and court records. Both have strengths and weaknesses in the reliability of what is reported. Regardless of source, the prevalence of juvenile offending in the U.S. is consistently high; however, trends fluctuate in total arrests and court case filings depending on the type of offense. Currently, the most growth is reflected in drug violations, person offenses, and public order offenses.

A strong relationship has been established with the higher rates of re-offending with each subsequent contact with juvenile courts. The nature of the first offense has also been shown to have predictive ability in regards to future offending. The approaches to measuring re-offending remain very diverse across studies and beg close attention to researchers' operational definitions.

Characteristics of Juvenile Offenders

The literature on the characteristics of juvenile offenders continues to emerge with large national samples routinely reported. The literature on the characteristics of juvenile offenders includes descriptions of age, race, and gender in relation to arrest and court proceedings. Age is described as a distinctive factor in a number of arrest trends. Arrest rates for youth aged ten to twelve are reported as trending higher for offenses such as violent crime, assault, drug violations, while the overall arrest rate for juvenile offenders has shown some decline in recent years. Arrests associated with racial groups reflect that the majority of juvenile offenses are committed by White youth who also make up the majority of the national population according to census figures. However, national arrest data also reflect a disproportionate number of Black/African-American youth arrested for a number of the most serious crimes. Lastly, while males continue to commit the majority of offenses according to arrest data, female youth are progressing at faster rates of arrest and have demonstrated the largest increases in offense areas such as aggravated and simple assault.

Psychosocial Risk Factors Associated with Juvenile Offending

The literature on a number of psychosocial risk factors and their association with juvenile offending are well established in studies of male youth, and to a limited extent with female youth, from large metropolitan areas. The identified psychosocial risks include individual, family, school, and peer group factors that are associated with the likelihood of youth engaging in juvenile offending behavior. The presence of these risk factors has been shown to be predictive of offending and the strength of the association increases as the number of risk factors present increase. Being younger than twelve, aggressive, impulsive, substance abusing, and male are firmly established as individual factors linked with offending. Youth with divorced parents,

living in single parent homes, living in homes with high parental conflict, living with families reporting a lower socioeconomic status, or from large families were described in the literature as experiencing higher risk of delinquency. Low academic achievement, truancy from school, and frequent relocations to new schools were all attributed to higher rates of delinquency in the literature. Lastly, associating with delinquent peer groups was firmly established in the literature as very predictive of delinquency.

While most studies describe psychosocial risk factors with male offenders, an emerging literature suggests that female offenders may possess many similar risk factors but possibly at a higher prevalence. The limited literature suggests that the majority of girls experience higher rates of abuse, mental health problems, substance abuse problems, physical health problems, and family conflict. Female offenders also appear to enter into juvenile offending via status offenses more so than males.

Causes and Correlates of Juvenile Offending and Re-Offending

The literature on offending and subsequent re-offending proposes a number of pathways or trajectories most common in youth who are seen to progress in their offending as well as those who desist. The literature on the causes and correlates of juvenile offending and re-offending identifies conditions, personal characteristics, social interactions, and developmental process which are causally linked to initiation, maintenance, and termination of delinquent behavior. Aggression, mental health problems, substance abuse, family conflict, educational problems, and substance abuse are all causally linked to offending and re-offending. Drug use, educational problems and mental health problems were prevalent at higher rates for the most serious, chronic male offenders.

Two distinct models that describe evolving offending behaviors are defined in the literature. One model presents the development of offending behaviors through three possible paths that overlap, while the other model presents two distinct trajectories largely predicted by age of onset. The literature offers empirical support for both models ability to describe the majority of youth who commit the most serious offenses.

Juvenile Justice Processing, Interventions, and Outcomes

The literature describes a history of juvenile justice processing that has progressed into more formalized processes, involving much more court intervention. The literature also describes a number of these processes as predictive of a higher rate of re-offending and progression into more serious offending with each subsequent contact; however, there are contrary findings in the literature as to the association of informal versus formal processing and subsequent re-offending. The literature also describes female youth as being more often handled by informal processes at first referral than male youth, and black male youth are described as petitioned for formal processing at higher rates then white males. Studies describing community based intervention programs have emerged in growing numbers in the literature since 1990. Much of the current research offers measures of recidivism to describe program outcomes; however, model methodologies and a detail regarding dosage of intervention components remains limited.

Discussion of the Implications of the Literature Review

The purpose of this study is to compare and contrast first-time juvenile offenders enrolled in a community-based intervention program whose cases were processed either informally or formally, and examine empirically and conceptually, relevant contributors to re-offending. Gender, race, socioeconomic factors, family structure, and how these variables are associated with both level of juvenile justice processing and continued delinquent behavior upon program

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entry, were of particular interest. Associations among youths' psychosocial risk factors, level of processing, and recidivism rates were explored.

Previous research investigating the association between levels of processing and re-offending vary widely. A number of studies found formal processing to be associated with higher rates of re-offending (Smith & Paternoster, 1990; Snyder, 1988). Other studies report a relationship between informal processing and lower rates of re-offending (Butts & Snyder, 1992; Davidson, et al., 1987; Regoli, Wilderman, & Pogrebin, 1985). Still other findings in the literature suggest informal processing is associated with higher rates of re-offending or has no discernable effect while formal processing is attributed to lower subsequent re-offense (Brown et al., 1991; Gensheimer & Associates, 1986; Whitehead & Lab, 1989). Based on current literature, the association between levels of processing and re-offending remains unclear.

Substantial literature exists regarding the predictive relationship between certain psychosocial risk factors, offending, and re-offending (Butts, 1996; Butts & DeMuro, 1989; Catalano & Miller, 1992; Farington, 1986; Hawkins, Catalano & Miller, 1992; Robins & Przybeck, 1985; Snyder, 1988; Thornberry, Huizzinga, & Loeber, 2004). However, very limited research is present in the literature that examines these same associations for female youthful offenders, and, furthermore, the studies that are commonly cited are reflective of only detained and incarcerated female samples (Acoca, 1999; Acoca & Dedel, 1998; Chesney-Lind & Pasko, 2004). Lastly, current literature examines samples from large metropolitan areas and often tends to focus on the most serious male offenders (Loeber, Farrington, & Petechuk, 2003; Thornberry, Huizinga, & Loeber, 2004; Moffitt, 1993)

This review of the literature has identified the empirically and conceptually relevant variables most germane to the investigation of the psychosocial risk factors of first-time juvenile

offenders and the association of these factors with level of processing and subsequent re-offending. This review has integrated the contributions of studies examining individual and psychosocial characteristics, youthful offending, and juvenile justice system handling. The scope of literature reviewed is comprehensive, thus increasing the likelihood that variables most relevant to the current study have been identified and appropriately delineated.

Definitions of Key Terms

Empirically and conceptually relevant variables will be operationally defined in the methodology section of this study. Terms relevant to the purpose of this study are defined below.

First-time Juvenile Offenders

A juvenile in the juvenile justice system is defined in regards to status and delinquency matters, as a youth at or below the upper age of court jurisdiction (in this study that is between the ages of 10 and 17). First-time juvenile offenders, for the purposes of this study, are limited to those youths whose behaviors are brought to the attention of various juvenile justice agencies. Implicit in this definition is the fact that many juveniles who commit crimes are never arrested nor brought into contact with a juvenile justice agency.

Gender

Gender is consistently described as either male or female throughout the literature and the growing body of knowledge suggests each gender is described as having unique characteristics associated with juvenile offending.

Race

Race in the current retrospective study includes White, Black, Asian, American Indian and Other, which is consistent with national juvenile justice statistical data during that time period.

Socioeconomic Factors

Socioeconomic factors are a combination of factors including family income, parental education level, parental occupation, and social status in the community. For purposes of this study, socioeconomic factors are limited to family income.

Family Structure

Family structure is defined by the composition of the caretakers (e.g. single mother/no father) and the family size.

Informal Processing

This is the manner in which the juvenile justice system handles a case without court petitioned, where authorized court personnel screen the case and make recommendations without adjudication and court disposition.

Formal Processing

This is the manner in which the juvenile justice system handles a case by petitioning a court for a youth to appear on the official court calendar and answer to a complaint. If found guilty of the charge presented, then the court is asked to adjudicate a youth as a delinquent, status offender, or dependent child. The court may also waive jurisdiction and transfer a youth to criminal court to be processed as an adult.

Psychosocial Risk Factors Associated with Offending

Psychosocial risk factors associated with offending include a number of conditions, attitudes, or behaviors that increase the likelihood that a child will develop delinquent behaviors which often lead to crime and arrest. Psychosocial risk factors are defined in the literature as the characteristics, variables, or hazards that, if present for a given individual, make it more likely that the individual, rather than someone selected at random from the general population, will

develop a disorder or problem. Risk factors exist in multiple psychosocial domains, including individual, family, school, peer, and community.

<u>Recidivism / Re-offending</u>

Recidivism, also known as re-offending, is a common outcome measure in the juvenile justice system. Recidivism refers to the repetition of criminal behavior, and may reflect a number of measures of re-offending, including arrest, court referral, conviction, correctional commitment, and correctional status changes within a given period of time.

<u>Contributors to Re-offending</u>

Contributors to re-offending are those factors which explain why and when offenders re-offend and are largely associated with developmental theories, in particular, known causes and correlates of delinquency.

**CHAPTER 3: METHODOLOGY**

This chapter provides a description of the research methodology employed in this study. First, the research questions are outlined. Second, the research design is presented, including descriptions and operational definitions of the study variables. Third, the research methodology is presented with detail regarding sample characteristics, protection of human subjects, data collection methods, instrumentation, and reliability of the data. The chapter concludes with a description of the data analyses.

<u>Research Questions</u>

This study compares and contrasts first-time juvenile offenders enrolled in a community-based intervention program whose cases were processed either informally or formally, and it examines empirically- and conceptually-relevant contributors to re-offending. Gender, race, socioeconomic factors, family structure, and how these variables are associated with both level of juvenile justice processing and continued delinquent behavior upon program entry, were of particular interest. Associations among psychosocial risk factors, level of processing, and recidivism rates were also explored. This study examines and answers the following research questions:

1. What are the individual and psychosocial characteristics of first-time juvenile offenders processed at informal and formal levels of the juvenile justice system?

2. What are the individual and psychosocial characteristics of first-time juvenile offenders who recidivate post informal and formal processing?

3. What are the interrelationships among individual and psychosocial characteristics, delinquent offenses, level of processing, program intervention, and recidivism in the juvenile justice system?

4. What combination of individual and psychosocial characteristics best predicts the level of processing a youth receives in the juvenile justice system?

5. What combination of individual and psychosocial characteristics best predicts recidivism?

## Research Design

The design of this study is a longitudinal, retrospective secondary analysis that examines the association of demographic, psychosocial, and system processing variables of youth ($N =$ 1072) who have demonstrated delinquent behavior and who have been referred to a single intervention program.  The data used for this study were obtained from an archival database used for program evaluation and quality assurance. According to Rubin and Babbie (1993), research involving large samples is appropriate to a cross sectional study approach where the plausibility of a supposition is sought in order for results to suggest a consistent pattern, but with the limitation that these results cannot be argued to be causal. The literature presents several advantages to using secondary analysis. There are cost and time savings advantages for both researcher and subjects due to the unobtrusive nature of data collection and it eliminates the potential for high rates of non-response commonly associated with survey approaches (Rubin & Babbie, 1993). The limitation of secondary analysis, however, is that the validity of the data is dependent upon how closely the questions of the current study resemble those originally intended by the initial means of data collection (Rubin & Babbie, 1993). In other words, questions and responses may come close to the needs of the current study, but will be limited by how well that data are collected and are similar in content to the intended use of the original dataset.

The current study analyzes an existing dataset of first-time youthful offenders referred from informal and formal levels of juvenile processing, yet all youth were enrolled in the same intervention program. The following is a discussion of key terms and variables defined and operationalized from the dataset. The data elements that were acquired for analysis are as follows: age, gender, race, type of offense, family income, marital status of biological parents, family structure, number of children living in the home, self-report of psychosocial risk (i.e. substance abuse, physical health, mental health, family relationships, peer relationships, educational status, and aggressive behavior/delinquency), level of juvenile justice processing, program completion, and recidivism status.

First-Time Juvenile Offenders

First time juvenile offenders are defined as youth, who are at or above the lower age of juvenile court jurisdiction and who are at or below the upper age of court jurisdiction in the juvenile justice system in response to status or delinquency matters (Stahl et al., 2005). Juvenile delinquency jurisdiction for youth in this study is defined by state statute as being between the ages of 10 and 17 (McGough & Triche, 2005). For the purpose of this study and as described by Snyder and Sickmund (2006), first-time juvenile offender status is limited to those youth whose behaviors were brought to the attention of various juvenile justice agencies. Implicit in this definition is the fact that many juveniles who commit crimes are never arrested nor brought into contact with a juvenile justice agency (Snyder & Sickmund, 2006). Juvenile offenses include both delinquent acts and status offenses. Delinquent acts are defined as "an act committed by a juvenile which, if committed by an adult, would be a criminal act…these acts include crimes against persons, crimes against property, drug offenses, and crimes against public order" (Stahl et al., 2005, p.79). Status offenses include, "acts or types of conduct that are offenses only when

committed or engaged in by a juvenile and that can be adjudicated only by a juvenile court"

(Stahl et al., 2005, p.82).

Intervention Program Completion

The intervention program to which all these youth were referred and data were collected

and maintained was administered via the Youth Service Bureau of St. Tammany Parish (i.e.

County). This is a private, non-profit organization that offers a variety of services for youth and

family involved with the juvenile justice system. The mission of the Youth Service Bureau is, "to

assist youth, especially troubled or high-risk youth to become responsible community members"

(YSB Manual, 2001, p. 1). The particular program utilized in this study is the Crossroads

Program. The goals of the Crossroads Program are to reduce the likelihood of first-time juvenile

offenders re-entering the justice system; afford troubled youth a second chance to become

responsible community members; assist families with troubled youth; provide community-based

services to the district attorney and court; and lower the juvenile crime rate to benefit and support

community safety (YSB Crossroads Pamphlet, 2000).

All subjects who entered and completed the intervention program received service

elements consistent with descriptions of Balanced and Restorative Justice (BARJ) models of

intervention found in the literature (Frievalds, 1996). The Crossroads intervention program is

based on the BARJ model (YSB Crossroads Pamphlet, 2000). This model has been adopted in at

least twenty-four states as of 1995 (Frievalds, 1996). BARJ is described as a model of

community justice that seeks to involve victims, offenders, and communities as co-participants in

the justice process (Frievalds, 1996). The approach is a model for balancing sanctioning, public

safety, and the rehabilitative needs of communities (Freivalds, 1996). BARJ places emphasis on

holding offenders accountable for harm caused while also enhancing the competency levels of juveniles so that the likelihood of re-offending is decreased (Freivalds, 1996).

Youth referred to the Crossroads Program from either informal or formal levels of juvenile justice processing receive a family assessment and risk screening. The youth and families participate in law-related education classes which are designed to teach the youth and their parents about both juvenile and adult laws. Each youth is assigned to a supervised community service work placement as recommended by the restitution model. All youth are also provided guidelines for writing, and review of, an offender's apology letter for submission to the case manager and for consideration in sharing with the victim(s) when appropriate. Routine supervision appointments with a bachelors level case manager at a minimum of one contact per month is provided for the youth in the intervention program. A one-time program service fee (e.g. in 2000, the fee was $65 per youth) is assessed and collected from the youth. Lastly, some youth are required by the sentencing judge or the District Attorney to pay monetary restitution to the victim(s) of their crime, which is set by actual proof of loss determined by interactions between the case manager and the victim. Youth may be referred by their case manager to additional services beyond those administered by the Crossroads Program. These vary widely and are dependent upon the assessed individual and family needs presented to the case manager. (YSB Annual Report, 2000).

The Crossroads intervention program explored in this study employs aspects of the BARJ model. As measures of accountability, youth perform monetary restitution to victims where physical loss could be valued. The youth are also held accountable through the payment of program fees, time allocated for program related meetings and case management, and community service work provided at non-profit and public organizations throughout the area.

Victim interaction is provided through the apology letter and monetary restitution components of the program. Lastly, competency development is provided in the program through a series of educational components. All youth and their guardians attend a law education class per the requirements of the program. Further, depending on the offense and outcome of the assessment, many youth attend traffic classes, family counseling, and other psychoeducational class offerings in the areas of substance use and abuse, parenting, leadership, and self-esteem.

<div align="center">Description of Study Variables</div>

This study examines differences in the characteristics of youth who are placed in informal and formal levels of juvenile justice processing as well as the characteristics of youth who recidivate. Further, the research examines whether youth could be differentiated by the presence, absence, or combination of certain characteristics that have been identified through previous research efforts to be associated with levels of processing and recidivism. Based on the research questions cited above, the independent and dependent variables are defined as follows:

Dependent Variables

The dependent variables used in this study were represented as two binary measures of juvenile justice system outcomes. These outcome measures included level of processing in the juvenile justice system identified as either informal processing or formal processing. Outcome measures also included recidivism defined as a youth's re-arrest and re-referral to either informal or formal levels of processing demonstrating a progression of delinquent behaviors after entering the intervention program. The recidivism variable was coded as either yes or no. Recidivism data included both one-year and three-year spans post program entry.

Independent Variables

The independent variables used in this study included individual and psychosocial characteristics, psychosocial risk factors, and intervention program completion. In terms of individual characteristics, the variables included age, gender, race and type of offense. Psychosocial characteristics included family income, marital status of biological parents, family structure, and number of children living in the home. Psychosocial risk factors included substance abuse, physical health, mental health, family relationships, peer relationships, educational status, and aggressive behavior/delinquency, as measured with the Problem Oriented Screening Instrument for Teens (Rahdert, 1991).

<div align="center">Operational Definitions of Dependent Variables</div>

Level of Processing

Level of processing is defined in the literature as either informal or formal levels of processing (Snyder & Sickmund, 2006; Stahl et al., 2005). Informal processing is the manner in which the juvenile justice system handles a case, and is defined by Stahl et al. (2005) as, "non-petitioned cases, (where) duly authorized court personnel, having screened the case, decide not to file a formal petition. Such personnel include referees, probation officers, and other officers of the court, and/or agencies statutorily designated to conduct petition screening for the juvenile court" (p.80). Formal processing is the manner in which the juvenile justice system handles a case and is defined by Stahl et al. (2005) as, "cases…that appear on the official court calendar in response to the filing of a petition, complaint, or other legal instrument requesting the court to adjudicate a youth as a delinquent, status offender, or dependent child or to waive jurisdiction and transfer a youth to criminal court for processing as a criminal offender" (p. 80). Both informal and formal levels of processing have been shown in the literature to be associated with

initial level of processing and subsequent re-offense (Brown et al., 1991; Butts & Snyder, 1992; Davidson et al., 1987; Gensheimer & Associates, 1986; MacDonald & Chesney-Lind, 2001; Reker, Cote, & Peacock, 1980; Snyder, 1988; Whitehead & Lab, 1989)

The dependent variable, level of processing, for purposes of this study is operationally defined as either informal or formal processing. Informal processing refers to a participant entering the intervention program as a referral from the district attorney with the status of not having been petitioned to court and thus having no formal adjudication as a status or delinquent offender under state law. No formal juvenile court processing is attributed to those participants. Formal processing on the other hand, refers to youth who had been petitioned to court and adjudicated a delinquent or status offender by formal juvenile court processing. These youth are typically placed under the supervision of the Louisiana Office of Youth Development's probation services and referred to the Crossroads Program intervention under court order. In this study, the level of processing variable is measured at the nominal level.

Recidivism

Recidivism is a common outcome measure in the juvenile justice system literature (Snyder & Sickmund, 2006). Recidivism refers to the repetition of criminal behavior, and may reflect a number of measures of re-offending, including arrest, court referral, conviction, correctional commitment, and correctional status changes within a given period of time (Snyder & Sickmund, 2006). For purposes of this research, recidivism is operationally defined as a youth being rearrested and re-referred to the district attorney or court for the commission of another delinquent offense following the offense for which he or she was originally referred for intervention. Youth were considered recidivists only if they were rearrested at a date post-referral into the intervention program. Recidivism data were recorded in the dataset as occurring within

one year of referral (yes or no) and within three years of referral (yes or no) to the program. In this study, the recidivism variable is measured at the nominal level.

<center>Operational definitions of Independent Variables</center>

Individual Characteristics

Age was calculated by the author and was based on the chronological age of the youth at the time of admission to the intervention program. Age was arrived at by subtracting the youth's recorded date of birth from the date of referral to the intervention program recorded for each case in the database. The variable age is maintained in the dataset as interval-level data.

Gender was identified by the guardian at the time of admission into the intervention program and was transferred into the dataset by the intervention program staff. Gender is consistently described as either male or female throughout the literature, although focus on specific gender differs by research designs and methodologies (Acoca & Dedel, 1998; Snyder & Sickmund, 2006). Gender is operationally defined as a discrete categorical variable that includes male or female. The variable gender is recorded in the dataset as nominal-level data.

Race, in the current retrospective study, includes White, African-American, Asian, and Other. As described in Stahl et al. (2005), race is determined by the youth, his/her family, or the justice system personnel. White is defined as, "a person having origins in any of the indigenous peoples of Europe, North Africa, or the Middle East;" Black is defined as, "a person having origins in any of the black racial groups of Africa;" and Other race is defined as, "a person having origins in any of the indigenous peoples of North America, the far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands" (Stahl et al., 2005: p. 80).  In the program dataset, race was identified by the guardian at the time of program admission, based on a selection of White, Black/African-American, Asian, Hispanic, Other, or Unknown. It is noted

<center>80</center>

that the category of Hispanic was maintained in the research dataset even though it was improperly classified as a race rather than an ethnicity in the program dataset. For purposes of this study, race is maintained as categorical data for initial descriptive purposes and then aggregated by the author to include majority (White, Caucasian, non-Hispanic) or minority (Black/African-American, Asian, Hispanic). This aggregation was necessary due to small sample sizes in the Asian, Hispanic, and Other categories. Race is measured at the nominal level in this dataset.

Type of offenses is commonly referred to throughout the juvenile justice literature (Snyder & Sickmund, 2005; Stahl et al., 2006). The original dataset included categorical data with a code for the most serious delinquent act and a modifier representing whether the act was a status, misdemeanor, or felony offense. Types of offenses varied widely and titles of offenses listed did not necessarily translate consistently with national norms. For example, a type of offense recorded as M6 is described in the coding sheet for the database as a misdemeanor shoplifting offense; however, shoplifting is incorporated into categories such as larceny-theft in national data such as Snyder and Sickmund (2005). In the original dataset, the referral source identified the delinquent act(s) committed when referring individual youth to the intervention program. These delinquent acts were coded in the database by intervention program staff with the most serious act listed first. The original dataset also contains an "Other" category, yet no further information is offered in the coding sheet or dataset to define what that category represents. For the purposes of this study, all offenses were classified into one of four categories: status, misdemeanor, felony, and other. Status offenses include truancy, runaway, curfew violation, ungovernable, and possession of alcohol. Misdemeanor offenses include shoplifting, theft less than $500, simple criminal damage to property less than $500, criminal trespassing,

illegal carrying of a weapon, criminal mischief, disturbing the peace, simple battery, simple assault, unauthorized use of a moveable vehicle, possession of drug paraphernalia, misuse of the telephone, driving while intoxicated, hit and run, and clinging to a moving vehicle. Felony offenses include theft greater than $500, simple burglary, simple burglary of an inhabited dwelling, aggravated burglary, possession of stolen property, simple criminal damage to property greater than $500, unauthorized entry on an inhabited dwelling, illegal discharging of a weapon, simple arson, second degree battery-with intent, aggravated battery, aggravated assault, possession with the intent to distribute marijuana or cocaine, and bomb threat/terrorizing. In this study, type of offense is measured at the nominal level.

Psychosocial Characteristics

Family income is typically measured as an indicator of socioeconomic status (Demarest, Reisner, Anderson, Humphrey, Farquhar, & Stein, 1993). Socioeconomic factors include family income, parental education level, parental occupation, and social status in the community such as contacts within the community, group associations, and the community's perception of the family (Demarest, et al., 1993). For purposes of this study, family income is based on the guardian's self-report and limited to six choices on the intake form completed at assessment. The categories listed in the dataset are: less than $10,000, $10,000 to $24,999, $25,000 to $34,999, $35,000 to $49,999, and $50,000 and above. The family income variable is measured at the nominal level.

Marital status of the youth's biological parents was indicated by self-report of the guardian at the time of assessment. Response options included married, single/divorced, widowed, and single parent/never married. These categories are similar to those referenced in previous studies (Dornbusch et al., 1985; Wells & Rankin, 1991; Steinberg, 1987). The marital status variable is maintained in the dataset as nominal-level data.

Family structure is defined by the make-up of caretakers in the home (Johnson, 1989). In this study, the make-up of caretakers defining a youth's family structure includes both parents/mother and father, single parent/mother, single parent/father, father/step-mother, mother/step-father, and other (i.e. relative or adoptive guardian). These classifications are consistent with the presentation of family structure in the literature (Johnson, 1989). These variables were derived from self-report of the adult guardian(s) at the time of referral and initial assessment in the intervention program when asked to describe with whom the child was living and that person's relationship to the child. In this study, family structure is a nominal-level measurement.

Family size is an important family structure factor in the juvenile justice literature (Johnson, 1989, Rosen, 1985). The information for the variable number of children living in the home was reported by the adult guardian(s) completing a self-report form on admission to the intervention program. Number of children living in the home is operationalized as the self-reported number of the total brothers and sisters the parent or guardian identified as residing in the home, including the referred youth. This definition is similar to comparable studies cited in the literature (e.g., Rosen, 1985). These responses were entered into the original dataset as interval-level data. For purposes of this study, the interval level-data were regrouped by the author into the following categories: small, medium, and large. Small included 1 to 3 children in the home, medium included 4 to 6 children in the home, and large included 7 or more children in the home. Number of children living in the home is maintained in the research dataset as nominal-level data.

<u>Psychosocial Risk Factors</u>

Psychosocial risk factors are defined as substance abuse, physical health, mental health, family relationships, peer relationships, educational status, aggressive behavior/delinquency, as indicated on the Problem Oriented Screening Inventory for Teens (POSIT), an empirical measure designed to indicate potential psychosocial problem areas (Rahdert, 1991). Low scores indicate less risk in that area of functioning and high scores indicate more risk in that particular area. According to Lecesse and Waldron (1994), the POSIT can be utilized by school personnel, juvenile and family court personnel, medical and mental health care providers, and staff in substance use disorder treatment programs. The POSIT was used by the intervention program staff to identify problematic functioning in the psychosocial areas outlined above. Potential risks are determined when a critical number of items within a functional area item-set are acknowledged by the youth with a yes response (Dembo & Andersen, 2005; Rahdert, 1991). Risk scores for each psychosocial area have demonstrated reliability and validity (Dembo & Andersen, 2005; Rahdert, 1991). In the program dataset, the risk score for each individual item was entered by the program staff. Risk for each psychosocial factor was grouped into additional variables by the author using low risk, moderate risk, and high risk cut-off scores as reported by Dembo and Andersen (2005). The number of items within each functional item-set varies, and the cut-off ranges described by Dembo and Andersen (2005) reflect this. As applied to this study, substance abuse scores were regrouped as low, moderate, or high risk with 0 being low risk, 1 to 6 moderate risk, and 7 to 17 high risk. Physical health raw scores were regrouped by risk with 0-1 being low risk, 2-3 moderate risk, and 4-10 high risk. Mental health raw scores were regrouped by risk with 0-4 being low risk, 5-10 moderate risk, and 11-22 high risk. Family relationships raw scores were regrouped by risk with 0-1 being low risk, 2-4 moderate risk, and 5-11 high risk.

Peer relationships raw scores were regrouped by risk with 0-1 being low risk, 2-5 moderate risk, and 6-10 high risk. Educational status raw scores were regrouped by risk with 0-5 being low risk, 6-11 moderate risk, and 12-26 high risk. Aggressive behavior and delinquency raw scores were regrouped by risk with 0-2 being low risk, 3-9 moderate risk, and 10-16 high risk. In summary, this study measures psychosocial risk factors at the ordinal level.

Intervention Program Completion

The intervention program referred to in this study is a package of services consistent with the BARJ model described by Freivalds (1996). For this study, data were derived from the program dataset where intervention program staff tracked completion for each participant. Each component of the packaged intervention is summarized in the research dataset by a discrete categorical variable indicating whether or not the youth completed that component. For purposes of this study, intervention program completion is operationalized as completion of all components of the intervention package to which the youth was assigned. Thus, intervention program completion is measured at the nominal level.

Research Methodology

Sample

The data for this study were taken from a larger archival program evaluation database. This is a nonprobability sample with reliance on available subjects and thus has the inherent problem of limited generalizability (Babbie, 1998, Rubin & Babbie, 1993). This clinical sample includes 1072 youth who were first-time offenders and who entered the intervention program between the years 1997 and 2002. The youth included male ($n = 757$, 71%) and female ($n = 315$, 29%) offenders who were between the ages of 10 and 16.

Each subject included in the study was referred to the intervention program under one of two conditions: informal juvenile justice processing ($n = 610$, 57%) or formal juvenile justice processing ($n = 456$, 43%). Approximately three-fourths of the sample was Caucasian/White/non-Hispanic ($n = 798$, 74%) and the remaining fourth was Black/African-American, Hispanic, Asian or Other ($n = 273$, 26%).

Per the interagency agreements and procedures described by the program staff for this juvenile justice system's jurisdictional area, this dataset represents the majority of first-time offenders who were handled informally through the district attorney's office and formally through court adjudication and probation. An unknown minority of cases may have been counseled, warned, and dismissed at the informal level by the district attorney, and, at the level of formal court processes. Very serious first-time offenders (e.g. those found guilty of rape, murder, etc.) would have been sentenced to the custody of the state or transferred to adult criminal proceedings and thus would not have been referred to the program. Consistent with the limitation of secondary analysis, findings will be restricted to the sample and no causal inferences will be made (Rubin & Babbie, 1993). Furthermore, because this is a nonprobability sample, representativeness is limited and the clinical findings will not be generalizeable to the population of first-time juvenile offenders (Rubin & Babbie, 1993).

Protection of Human Subjects

The data were obtained by the researcher directly from the database of the agency intervention program with the names and identifying information of the youth removed by the agency staff for confidentiality purposes prior to research use and analysis. Information removed included youth's name, program case number, court docket number, guardian name(s), and addresses. No subjects were identifiable and or contacted by the researcher. The information in

the dataset originated from the self-reports of offenders and their parent(s) or guardian(s) at the time of referral to the agency intervention program. Data were collected by social workers and case managers working for the program as part of an intake and assessment process and was archived in the program's database for program evaluation and quality assurance purposes. The social workers and case managers also updated the database as information was obtained concerning recidivism and completion or non-completion of program elements.

The investigator for this current study created this database in 1996 and the agency has maintained it since. The agency's program evaluation staff have used the data for reporting demographics, program utilization, and some program outcomes to funding sources and stakeholders. All clients received a verbal and written explanation as to the program evaluation nature of the data collection at the point of the initial gathering of demographic information. None of these data were obtained from a healthcare provider. Due to all the factors outlined above, this study was approved for exemption by the Institutional Review Board of Louisiana State University.

Data Collection

The individual case-level database was maintained by the intervention program's caseworkers, clinicians and supervisors. The majority of information was collected and entered at the time of intake into the program. Program staff entered intervention-specific information as youth progressed in the program and during the follow-up period. Recidivism information was entered by the program staff as provided by the local court or District Attorney's office. Most of the dataset is complete; however, there are missing data which appear to be random for some individual case records. The impact of missing data is discussed in the sections describing reliability of the data and limitations of the findings. Approximately one-third ($n = 357$, 33%) of

the cases include POSIT scores, and these measures were handled with separate analyses as described in the data analyses section.

All data were obtained by the researcher directly from the dataset of the intervention program. Program data were maintained at the agency using Microsoft's Excel spreadsheet software. The data were directly merged electronically from the spreadsheet format into the SPSS statistical package for processing. The original dataset included 33 assessment and intervention variables obtained either prior to intake, at intake, during program process, or post-program intervention.

Information Obtained Prior to Intake

Information was obtained prior to intake by program staff from either the informal process conducted by the district attorney's office or the formal process conducted by the court. The information obtained from subjects prior to the intake included referral source, type of offense, and referral date. The referral variable was coded in the dataset as either district attorney or court. Information regarding the type of offense was provided by the referral source, was received by the intervention program, and recoded into one of four categories: status, misdemeanor, felony, or other. Within each offense category, specific offenses were assigned a category-specific code. The referral date, which is defined in the program's data coding procedures as the date of the referral or complaint, was received and entered by the program staff.

Information Obtained at Intake

The vast majority of information contained in the original dataset was gathered at intake by the program staff through self-report intake forms and a standardized screening tool. Intake data included date of assessment, date of birth, gender, race, parent employment status, and

family structure variables. The POSIT was administered to collect data about potential psychosocial problems.

The assessment date variable identified the month, day, and year the youth and his or her family participated in the intervention program's initial assessment. The date of birth field yielded a self-reported birth date for the youth. Gender was coded as male or female. Race was identified as White, Black/African-American, Asian, Hispanic, or Other. For the POSIT variable, seven risk subscales were coded as follows: substance abuse (SA), physical health (PH), mental health (MH), family relationship (FR), peer relationship (PR), educational status (ES), aggressive behavior and delinquency (AB).. The youth's family structure at the time of the referral to the intervention program was measured with one self-report item. Responses options included: mother and father, mother only, mother and step-father, father only, father and step-mother, relative, adoptive guardian, and other. Another self-report item reported marital status of the youth's biological parents as either married, separated/divorced, single parent/never married, or widowed. Family income was measured with one self-report item, and included five options: under $10,000, $10,000 to $24,999, $25,000 to $34,999, $35,000 to $49,999, $50,000 and above, and unknown. Number of children living in the home was coded as the number of children, including the youth, residing in the home of the youth at the time of referral.

Information Obtained During Program Enrollment

Once enrolled in the intervention program, the youth's progress was updated by the program staff. These progress-related variables included program fees, law related education class (LREC) attendance, community service work (CSW), monetary restitution, written apology to the victim(s), and lastly, whether the youth completed the intervention program.

The program fee owed variable measured the dollar amount remaining from the assessed $65.00 fee, with $0 indicating full payment. The amount waived variable listed any portion of the program fee that was transferred to community services hours in lieu of financial payment for youth and families who qualified for such financial assistance. The youth's and guardian's (s') attendance in the law related education class were measured with and recorded as either yes or no. The number of hours the youth had worked community service and the number of community service work hours remaining were recorded. The dollar amount paid to the victim(s) of the youth's offense and the dollar amount remaining to be paid to the victim(s) were recorded. Whether the youth completed his or her written apology to the victim(s) was recorded as yes or no. Program completion was reported as complete if the youth completed all requirements or incomplete if he or she did not complete all assigned program requirements.

Information Obtained Following Completion of the Program

Recidivism was the only variable tracked after program completion. This information was obtained as secondary data from district attorney and court referrals and was measured with a yes or no at both the one and three year interval.

Instrumentation

As an empirically valid measure, variables comprising the psychosocial risk factors included POSIT domains and risk scores. The POSIT domains, as described previously, measure risk associated with psychosocial factors. The POSIT scoring system developed by the National Institute on Drug Abuse (NIDA) includes empirically based cut-off scores that indicate low, moderate, or high risk. The total raw score for each problem determines the level of risk for that area (Dembo & Anderson, 2005).

This 139-question self-administered yes or no item response instrument was developed by the NIDA (Rahdert, 1991) for use with male and female youth between the ages of 12 to 19 (Rahdert, 1991). Convergent and discriminating data that indicate the validity of the POSIT have been reported by a number of investigators (Dembo, Schmeidler, Borden, Turner, Chin Sue, & Manning, 1996; Rahdert, 1991). Rahdert (1991) specifically names content, predictive criterion, and concurrent criterion measures as demonstrative of the instrument's validity. In addition, Hall, Richardson, Spears, and Rembert (1998) found high construct validity for the POSIT.

Psychometrics for the POSIT reported by Rahdert (1991) state that test-retest and internal consistency studies have demonstrated the instruments reliability. Specific studies on the reliability of the POSIT indicate internal consistency exceeded .70 and test-retest reliability was significantly better than chance (Knight, Goodman, Pulerwitz, & DuRant, 2001). Further, research findings indicate the POSIT is useful in the prediction of recidivism (Dembo et al., 1996).

Reliability of the Data

The overall dataset used in the current study was largely complete; however, as observed by Rubin and Babbie (1993), the reliability of self-report data can be questionable. The use of the POSIT which is a valid and reliable measure of specific psychosocial risks, enhances the reliability of these self-report data. Nevertheless, it is possible that the juvenile respondents in this sample provided answers in a biased manner to avoid scrutiny or a negative evaluation from staff. Thus, it is possible that subjects were biased in their responses to the POSIT. This is described in the literature as a social desirability bias (Rubin & Babbie, 1993).

Data were entered by program staff. The dataset showed minor problems with regard to data entry errors and missing data. The bulk of missing data included the variables describing the

status of program fees, class attendance, community service work, monetary restitution, and written apology by the offenders. Missing data in these areas is likely due to the fact that this dataset was a duplication of information also being maintained in hardcopies of participants' records while they were in the program. Information about program completion had little missing data.

<div align="center">Data Analysis</div>

The original dataset, as collected by the intervention program, was obtained from the author and electronically transferred from its original Microsoft Excel spreadsheet platform to SPSS statistical software while ensuring accuracy and consistency. Three levels of analyses were conducted including univariate descriptive analyses, bivariate analyses, and multivariate analyses, as appropriate to the levels of measurement of the variables and the specific research questions being answered. The specific research questions examined and answered in this study include:

1. What are the individual and psychosocial characteristics of first-time juvenile offenders processed at informal and formal levels of the juvenile justice system?

2. What are the individual and psychosocial characteristics of first-time juvenile offenders who recidivate post informal and formal processing?

3. What are the interrelationships among individual and psychosocial characteristics, delinquent offenses, level of processing, program intervention, and recidivism in the juvenile justice system?

4. What combination of individual and psychosocial characteristics best predicts the level of processing a youth receives in the juvenile justice system?

5. What combination of individual and psychosocial characteristics best predicts recidivism?

Univariate analysis is recommended for the examination and descriptive reporting of the distribution of cases for one variable (Rubin & Babbie, 1993). Therefore, descriptive statistics were used to summarize the demographic characteristics of the entire sample and to illustrate variable frequencies and measures of central tendency appropriate to the level of measurement. Questions about the individual and psychosocial characteristics of first-time juvenile offenders who were processed informally and formally and those who recidivated after intake were answered utilizing descriptive statistics. These variables include age, gender, race, type of offense, family income, marital status of biological parents, family structure, number of children living in the home, intervention program completion, level of processing, and recidivism. Additional descriptive statistical methods to demonstrate measures of central tendency for interval level data were applied as supported in the literature (Hinkle, Wiersma, & Jurs, 2003; Rubin & Babbie, 1993). Variables from the dataset that were appropriate for applying measures of central tendency include age and number of children in the home.

POSIT data were available for approximately one third of the sample ($n = 357$, 33.3%). Because the information gathered with the POSIT is critical to the goals of this data, the subset of cases with POSIT scores was scrutinized and then compared with the frequency distributions of the entire sample ($N = 1072$). Missing data is one of the most persistent problems in data analysis, and random missing values are less serious than nonrandom missing data (Tabachnick & Fidell, 2001). Upon careful examination of the dataset, it appears that the POSIT was implemented in 1997 and the respondent information from the POSIT test was entered inconsistently in the database through 2002. The inconsistency was at the level of cases missing

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the entire POSIT test results and not individual cases with partial test scores entered, thus each case with POSIT information was complete across all POSIT fields. According to Tabachnick and Fidell (2001), there are no firm guidelines for how much missing data can be tolerated in any given sample; however, one method for handling missing data is repeating analyses with and without the missing data. Thus, for this study, the descriptive analysis was repeated using all the variables listed above with the subset of cases with POSIT scores and similarities and differences in the samples were reviewed.

Bivariate analysis for the purposes of subgroup comparisons are appropriate where two variables are involved and descriptive summaries of the relationship between the variables is desired (Rubin & Babbie, 1993). According to Morgan, Reichert, and Harrison (2002), nonparametric statistics such as chi-square tests are frequently used in the social sciences to examine associations for nominal level data. Furthermore, chi-square tests are specifically used with dependent variables measured on frequencies, also described as nominal scales (Hinkle, Wiersma, & Jurs, 2003). Questions about the interrelationships among individual and psychosocial characteristics, psychosocial risk factors, delinquent offenses, level of processing, intervention program completion and recidivism were answered utilizing the chi-square statistic. These bivariate analyses examined the distributions of the nominal-level dependent variables level of processing and recidivism among the distributions of age, gender, race, type of offense, family income, marital status of biological parents, family structure, and number of children living in the home (measured in categories) for the entire sample ($N = 1072$). Analysis of recidivism included measures at one year and at three years, and the additional independent variable intervention program completion which was not included in the analysis of level of processing.  For the subset of cases with POSIT scores ($n = 357$), chi-square was used to

examine distributions among level of processing, recidivism at one year, recidivism at three years, and POSIT risk level (low, medium, and high) for each of the subscales: substance abuse, physical health, mental health, family relationship, peer relationship, educational status, and aggressive behavior/delinquency.

Multivariate analyses for the current study proceeded according to findings yielded at preceding steps in the statistical analyses. These analyses were appropriate to these data because of the correlational design of this study. As presented in the research design section, this approach is commonly employed for large sample sizes like that of the present study (Rubin & Babbie, 1993). Few behaviors can be predicted from only one variable, and multivariate analysis allows for multiple correlations between combinations of variables to predict a criterion variable (Tabachnick & Fidell, 2001). In addition, multivariate statistical procedures do not require time-order and rival hypotheses are typically ruled out (Rubin & Babbie, 1993). The multivariate analyses employed in this study used logistic regression procedures.

Logistic regression methods were utilized to examine what combination of individual and psychosocial characteristics best predicts the level of processing a youth receives in the juvenile justice system and what combination best predicts recidivism. Logistic regression methods were chosen because they are an appropriate multivariate method when the dependent variable is dichotomous and the independent variables are either continuous or discrete (Tabachnick & Fidell, 2001). Both level of processing and recidivism are dichotomous dependent variables. Age and number of children in the home are continuous independent variables while gender, race, type of offense, family income, marital status of biological parents, family structure, program completion, and POSIT risk levels (substance abuse, physical health, mental health, family relationship, peer relationship, educational status, and aggressive behavior/delinquency) are

discrete independent variables. As described in Tabachnick and Fidell (2001), logistic regression

analysis is correctly utilized when the researcher is seeking to predict group membership. This

method allows for the identification of significant predictors of the dependent variables and the

ability to report odds ratios for each predictor variable (Tabachnick & Fidell, 2001). In the

current research, this statistical method was used to assess the relationship of specific variables

to the prediction of membership in levels of processing in the juvenile justice system and groups

of recidivists.

As introduced earlier, the prevalence of cases missing POSIT data was also contended

with in the multivariate analysis. The subset of youth who had recorded POSIT scores was

isolated and analyzed using the same logistic regression methods employed for the entire sample

in order to investigate the predictive ability of the risk levels identified on the POSIT in both

levels of processing and recidivism. As recommended by Tabachnick and Fidell (2001), both the

results of the sub-sample analysis and the full-sample analysis will be reported and similarities

and differences will be explored in the findings and discussion sections that follow.

<u>Sample Size</u>

A power analysis was conducted in order to determine if the sample size was sufficient

for the types of statistical analyses planned for this data. As defined in Hinkle, Wiersma, and Jurs

(2003, p. 299), "Power is defined as the probability of rejecting the null hypothesis when it is

false." According to Rubin and Babbie (1993), increasing the sample size reduces the risk of a

Type II error, but increases the likelihood of a Type I error. A Type II error is accepting a false

null hypothesis, and a Type I is falsely rejecting a null hypothesis (Rubin & Babbie, 1993).

Statistical power analysis guides decision-making about sample size and addresses the

probability of committing a Type II error (Hinkle, Wiersma, & Jurs, 2003).

Logistic regression analyses were used in this study to assess the predictive influence of identified independent variables on discrete, categorical dependent variables. Therefore, a power analysis designed to determine a sample size for multivariate analyses was performed. In order to demonstrate standard statistical power of .80 for a level of significance set at .05, a sample size of 190 was needed for the logistic regression analyses (Lenth, 2006). Furthermore chi-square analyses were used in this study to examine distributions among the nominally measured dependent variables and the sixteen independent variables, thus a power analysis to determine a sample size for bivariate analyses was performed. In order to demonstrate standard statistical power of .80 for a level of significance set at .05, a sample size of 136 was needed for the two-tail chi-square analyses (Lenth, 2006). The current sample size of 1072 for the entire sample and 357 for the POSIT sub-set exceed both of these minimum requirements.

# CHAPTER 4: RESULTS

This study was designed to compare and contrast first-time juvenile offenders enrolled in a community-based intervention program whose cases were processed either informally or formally, and it examines empirically- and conceptually-relevant contributors to re-offending. Particular areas of interest included gender, race, socioeconomic factors, family structure, and how these variables are associated with both level of juvenile justice processing and continued delinquent behavior upon program entry. Associations among psychosocial risk factors, level of processing, and recidivism rates were also explored.

This chapter presents the results of analyses conducted in this study. The analyses of the data are organized by order of the research questions presented in Chapters 1 and 3. First, the entire sample will be described. Second, results of univariate analyses will be used to describe special subsets of the sample. Next, the results of the bivariate analyses will be presented. The chapter concludes with a presentation of the results of the multivatiate analysis. An alpha level of .05 was used to determine significance for all bivariate and multivariate statistical analyses.

## Description of Sample Characteristics

The population under analysis was composed of 757 males and 315 females (total $N = 1072$) who participated in a program for first-time juvenile offenders between the years of 1997 and 2002 and who were referred to the program either through informal or formal levels of juvenile justice processing. The descriptive findings related to this group are displayed in Tables 1 through 5.  Data for a subset of youth with available POSIT psychosocial risk level scores ($n = 357$) are presented along side the overall sample descriptors.

Age was reported for 1069 youth in the dataset. Of the 1069 youth, just under one third (30.6%) were reported to be age sixteen at the time of processing (See Table 1). Just over a

quarter (28.3%) of the youth were reported to be age fifteen and one fifth (20.6%) were reported

to be age fourteen. The remainder of the sample was reported to be age ten (0.5%), age eleven

(1.8%), age twelve (7.1%), and age thirteen (11.1%). The mean age of the sample was 14.56

with a standard deviation of 1.34 and median age of 15. The subset of youth with POSIT scores

($n = 357$) was very closely matched with the entire sample in regards to age. The mean age of the

POSIT subset was 14.47, with a standard deviation of 1.29 and a median age of 15.

**Table 1.**
**Descriptive Characteristics of Age, Gender, and Race for the Entire Sample ($N = 1072$)**
**and the POSIT Sub-sample ($n = 357$)**

| Characteristic | Entire Sample | | POSIT Sub-sample | |
|---|---|---|---|---|
| | $N$ | (%) | $n$ | (%) |
| **Age***  | | | | |
| 10 | 5 | (0.5) | 1 | (0.3) |
| 11 | 19 | (1.8) | 2 | (0.6) |
| 12 | 76 | (7.1) | 26 | (7.3) |
| 13 | 119 | (11.1) | 58 | (16.2) |
| 14 | 220 | (20.6) | 73 | (20.4) |
| 15 | 303 | (28.3) | 103 | (28.9) |
| 16 | 327 | (30.6) | 94 | (26.3) |
| | 1069 | 100% | 357 | 100% |
| | | | | |
| **Gender** | | | | |
| Male | 757 | (70.6) | 254 | (71.1) |
| Female | 315 | (29.4) | 103 | (28.9) |
| | 1072 | 100% | 357 | 100% |
| | | | | |
| **Race** | | | | |
| Black | 248 | (23.2) | 95 | (26.6) |
| White | 798 | (74.5) | 252 | (70.6) |
| Hispanic/Latino | 11 | (1.0) | 5 | (1.4) |
| Asian | 6 | (0.6) | 2 | (0.6) |
| Other | 8 | (0.7) | 3 | (0.8) |
| | 1071 | 100% | 357 | 100% |

*Note.* * Age: Entire sample ($M = 14.56$; $SD = 1.34$); POSIT sub-sample ($M = 14.47$; $SD = 1.29$).

Gender was reported for the entire sample of 1072 youth. Just under three fourths of the sample was male (70.6%), and just over a quarter of the sample was female (29.4%) (See Table 1). Almost three-quarters of the sample was White/non-Hispanic (74.5 %). This group is referred to as the majority in further analyses of race. Just over a quarter of the cases (25.5%) recorded their race as Black/African American (23.2%), Hispanic/Latino (1.0%), Asian (0.6%), or Other (0.7%) (See Table 1). This latter group of cases is referred to as the minority in further analyses of race. The subset of cases containing POSIT scores ($n = 357$) closely resembled the characteristics of the entire sample in regards to gender and race. Males comprised just under three quarters of this subset of cases (71.1%) and females made up just under thirty-percent (28.9%). Similar proportions of the subset of POSIT cases were White/non-Hispanic (70.6%) and similar proportions of cases in the subset were Black/African-American (26.6%), Hispanic/Latino (1.4%), Asian (0.6%), and Other (0.8%).

Table 2 summarizes the descriptive characteristics of the youths' families. These characteristics include family structure as reported at the time of intake, marital status of biological parents, family income, and the number of children in the home including the youth. When asked with whom the child was living, the parent/guardian reported both parents (41.8%) or a single parent configuration (41.0%) at almost the same rate, noting that most of the single parent configurations were listed as mothers ($n = 335$; 33.0%). Other family structure configurations reported were mother and step-father ($n = 91$; 9.0%), father and step-mother ($n = 29$; 2.9%), relatives ($n = 50$; 4.9%), or adoptive guardian ($n = 4$; 0.4%). These breakdowns suggest that the greatest proportion ($n = 590$; 58.1%) of youth were living in a home that was headed by a configuration other than both biological parents. The POSIT subset ($n = 353$) resembled the results from the entire sample, with 41.6% of cases reporting single parent

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structures and 5.7% reporting other configurations. Family structures described as both parents

(mother and father) were reported at slightly lower rates in the POSIT subset (35.7%) than in the

**Table 2.**
**Descriptive Characteristics of Youths' Families for the Entire Sample (*N* = 1072)**
**and the POSIT Sub-sample (*n* = 357)**

| Characteristic | Entire Sample | | POSIT Sub-sample | |
|---|---|---|---|---|
| | *N* | (%) | *n* | (%) |
| **Family Structure** | | | | |
| Both Parents/Mother and Father | 424 | (41.8) | 126 | (35.7) |
| Single Parent | 416 | (41.0) | 147 | (41.6) |
| Parent/Step-Parent | 120 | (11.8) | 60 | (17.0) |
| Other | 54 | (5.3) | 20 | (5.7) |
| | 1014 | 100% | 353 | 100% |
| **Marital Status of Biological Parents** | | | | |
| Married | 439 | (43.1) | 129 | (36.6) |
| Divorced/Separated | 383 | (37.6) | 146 | (41.5) |
| Single Parent/Never Married | 141 | (13.8) | 56 | (15.9) |
| Widowed | 56 | (5.5) | 21 | (6.0) |
| | 1019 | 100% | 352 | 100% |
| **Family Income** | | | | |
| Under $10,000 | 190 | (20.6) | 59 | (18.5) |
| $10,000 - $24,999 | 247 | (26.8) | 93 | (29.2) |
| $25,000 - $34,999 | 134 | (14.5) | 47 | (14.7) |
| $35,000 - $49,999 | 146 | (15.8) | 50 | (15.7) |
| $50,000 and above | 205 | (22.2) | 70 | (21.9) |
| | 922 | 100% | 319 | 100% |
| **Number of Children in Home**[*] | | | | |
| 1 to 3 | 818 | 81.3 | 297 | 83.2 |
| 4 to 6 | 181 | 18.0 | 57 | 15.9 |
| 7 or more | 7 | 0.7 | 3 | 0.9 |
| | 1006 | 100% | 357 | 100% |

*Note.* [*] Number of Children in Home: Entire Sample (*M* = 2.44; *SD* = 1.26); POSIT Sub-sample (*M* = 2.38; *SD* = 1.25).

entire sample (41.8%). Parent and step-parent family structures were reported at slightly higher rates in the POSIT subset (17.0%) than in the entire sample (11.8%).

At the time of referral, youth and their guardian(s) were asked to describe the marital status of the youth's biological parents. Table 2 shows the recorded responses. The greatest proportion of youth's parents were married (43.1%), with just over one third (37.6%) divorced or separated. Smaller proportions of the youth's parents were single parents who never married each other (13.8%) and widowed (5.5%). Compared to the entire sample, the POSIT subset ($n = 352$) had similar proportions of youth's parents reported as married (36.6%), divorced or separated (41.5%), single parents who never married each other (15.9%) and widowed (6.0%).

The most frequent family income range reported for the youths' households was $10,000 to $24,999 (26.8%). This was followed by reported income levels of $50,000 and above (22.2%), income under $10,000 (20.6%), income between $35,000 and $49,999 (15.8%), and income between $25,000 and $34,999 (14.5%). The POSIT subset ($n = 319$) followed similar patterns with the most frequently reported income range as $10,000 to $24,999 (29.2%) and the least frequent income range as $25,000 to $34,999 (14.7%) (See Table 2).

The greatest proportion of the sample ($n = 1006$) reported having one to three children living in the home (81.3%). The mean number of children living in the home was 2.44 (SD = 1.26) with a median age of 2. The subset of cases reporting POSIT scores ($n = 357$) was very similar to the entire sample with the mean number of children in the home reported as 2.38 (SD = 1.25) with a median of 2 (See Table 2).

The type of offense that the youth was reported as having committed was obtained by the intervention program staff from the referral source, which was by either the informal or formal juvenile justice processes. Just under three fourths (72.1%) of the sample were reported as

having a misdemeanor type of offense (See Table 3). A little over one fifth were referred to the

intervention program with a felony offense (22.3%). The remainder of the sample was reported

as having been charged with a status offense (2.9%) or other offense (2.7%). For the subset with

POSIT scores ($n = 357$), the same general distribution was observed with misdemeanor offenses

being reported most often (68.1%) followed by felony offenses (25.8%), and status offenses

(3.4%).

**Table 3.**
**Descriptive Characteristics of Type of Most Severe Offense for the Entire Sample**
**($N = 1072$) and the POSIT Sub-sample ($n = 357$)**

| Characteristic | Entire Sample N | (%) | POSIT Sub-sample n | (%) |
|---|---|---|---|---|
| **Type of Most Severe Offense** | | | | |
| Status | 31 | (2.9) | 12 | (3.4) |
| Misdemeanor | 771 | (72.1) | 243 | (68.1) |
| Felony | 238 | (22.3) | 92 | (25.8) |
| Other | 29 | (2.7) | 10 | (2.8) |
| | 1069 | 100% | 357 | 100% |

Individual, Psychosocial Characteristics, and Levels of Processing

This section answers the research question that asks what are the individual and

psychosocial characteristics of first-time juvenile offenders processed at informal and formal

levels of juvenile justice system processing. Youth in the sample were categorized into a level of

processing based on the route of referral into the program. Youth referred by the District

Attorney's Office were identified as having gone through an informal level of juvenile justice

system processing. Youth referred to the program after going to court, being found guilty of a

delinquent offense and adjudicated, were identified as formally processed. Over half of the

sample was referred by informal processing ($n = 610$; 56.9%) and just under half were referred

through formal processing ($n = 456$; 42.5%) (See Table 4). Six of the 1072 cases had missing data for this variable.

**Table 4.**
**Descriptive Characteristics of Youth Informally ($n = 610$) and Formally ($n = 456$) Processed**

| Characteristic | Informal | | Formal | |
|---|---|---|---|---|
| | *n* | (%) | *n* | (%) |
| **Age** | | | | |
| 10 | 2 | (0.3) | 2 | (0.4) |
| 11 | 11 | (1.8) | 8 | (1.8) |
| 12 | 47 | (7.7) | 29 | (6.4) |
| 13 | 66 | (10.8) | 53 | (11.7) |
| 14 | 136 | (22.3) | 83 | (18.3) |
| 15 | 168 | (27.6) | 133 | (29.3) |
| 16 | 179 | (29.4) | 146 | (32.2) |
| | 609 | 100% | 454 | 100% |
| **Gender** | | | | |
| Female | 209 | (34.3) | 105 | (23.0) |
| Male | 401 | (65.7) | 351 | (77.0) |
| | 610 | 100% | 456 | 100% |
| **Race** | | | | |
| Majority | 476 | (78.0) | 316 | (69.5) |
| Minority | 134 | (22.0) | 139 | (30.5) |
| | 610 | 100% | 455 | 100% |
| **Type of Offense** | | | | |
| Status | 28 | (4.6) | 3 | (0.7) |
| Misdemeanor | 490 | (80.6) | 275 | (60.4) |
| Felony | 77 | (12.7) | 161 | (35.4) |
| Other | 13 | (2.1) | 16 | (3.5) |
| | 608 | 100% | 455 | 100% |

The ages of the informally processed and formally processed cases were very similar. Over three fourths (79.3%) of informally processed cases were ages 14, 15 and 16. Similarly, over three fourths (79.8%) of the formally processed cases were the same ages, noting there were 121 fewer cases formally processed for those age categories (See Table 4). Gender, on the other

hand, showed some variation between informal and formal levels of processing. A greater proportion of females were processed at the informal level (34.3%) than at the formal level (23.0%). Conversely, a greater proportion of males were processed formally (77.0%) than informally (65.7%) (See Table 4). Furthermore, a higher percentage of minority youth (30.5%) were represented in the formally processed group than in the informally processed group (22.0%) (See Table 4).

Type of offense committed by the youth was distributed with a higher proportion of status and misdemeanor offenses processed informally (85.2%). Approximately 25% fewer youth who committed status or misdemeanor offenses (61.1%) were formally processed. Furthermore, in terms of proportions, almost three times as many youth who were formally processed committed felony offenses (35.4%) than youth who were informally processed (12.7%) (See Table 4).

Characteristics of the youths' families differed in a number of areas between the informally and formally processed cases. A slightly higher percentage of youth reported a family structure consisting of both parents in the informally processed group (43.6%) than in the formally processed group (39.7%). Likewise, those formally processed had slightly higher proportions of single parent family configurations (42.5%) than did those who were informally processed (39.5%) (See Table 5). Furthermore, a greater proportion of youth whose biological parents were reported as never married were formally processed (17.5%) than were those who were informally processed (11.3%). Families reporting an annual income of below $24,999 were found in over half of the formally processed group (51.8%) and just under half (44.1%) of those informally processed (See Table 5). Family size also differed slightly between informal and

formal processing. Families with four or more children represented a larger proportion of those

formally processed (22.1%) than those who were informally processed (16.2%) (See Table 5).

**Table 5.**
**Family Characteristics of Youth Informally (*n* = 610) and Formally (*n* = 456) Processed**

| Characteristic | Informal | | Formal | |
|---|---|---|---|---|
| | *n* | (%) | *n* | (%) |
| **Family Structure** | | | | |
| Both Parents | 253 | (43.6) | 170 | (39.7) |
| Single Parent | 229 | (39.5) | 182 | (42.5) |
| Parent/Step Parent | 71 | (12.2) | 49 | (11.4) |
| Other | 27 | (4.7) | 27 | (6.3) |
| | 580 | 100% | 428 | 100% |
| **Marital Status of Biological Parents** | | | | |
| Married | 260 | (44.4) | 178 | (41.6) |
| Separated/Divorced | 224 | (38.3) | 154 | (36.0) |
| Never Married | 66 | (11.3) | 75 | (17.5) |
| Widowed | 35 | (6.0) | 21 | (4.9) |
| | 585 | 100% | 428 | 100% |
| **Family Income** | | | | |
| Under $10,000 | 100 | (19.0) | 89 | (22.7) |
| $10,000-$24,999 | 132 | (25.1) | 114 | (29.1) |
| $25,000-$34,999 | 79 | (15.0) | 54 | (13.8) |
| $35,000-$49,999 | 87 | (16.6) | 57 | (14.5) |
| $50,000 & above | 127 | (24.2) | 78 | (19.9) |
| | 525 | 100% | 392 | 100% |
| **Number of Children** | | | | |
| 1 to 3 | 485 | (83.8) | 328 | (77.9) |
| 4 to 6 | 92 | (15.9) | 88 | (20.9) |
| 7 & above | 2 | (0.3) | 5 | (1.2) |
| | 579 | 100% | 421 | 100% |

Individual, Psychosocial Characteristics, and Recidivism

The intervention program staff collected and recorded data when a youth re-offended

after referral to the program. The information is analyzed and presented in the following section

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in order to answer the question that asks what are the individual and psychosocial characteristics of first-time juvenile offenders who recidivate post informal and formal processing. For this sample, eight percent of the youth ($n = 87$; 8.1%) were described as having re-offended within one year of referral to the program. Twelve percent of the youth ($n = 133$; 12.4%) were identified as having re-offended within three years of referral to the program.  This information is summarized in Tables 6 and 7 and reflects all cases that recidivated within three years of referral.

**Table 6.**
**Descriptive Characteristics of Recidivists ($n = 133$) and Non-Recidivists ($n = 937$)**

| Characteristic | Non-Recidivist | | Recidivist | |
|---|---|---|---|---|
| | *n* | (%) | *n* | (%) |
| **Age (at first offense)** | | | | |
| 10 | 5 | (0.5) | 0 | (0.0) |
| 11 | 17 | (1.8) | 2 | (1.5) |
| 12 | 61 | (6.5) | 15 | (11.3) |
| 13 | 96 | (10.3) | 23 | (17.3) |
| 14 | 192 | (20.6) | 28 | (21.1) |
| 15 | 268 | (28.7) | 35 | (26.3) |
| 16 | 295 | (31.6) | 30 | (22.6) |
| | 934 | 100% | 133 | 100% |
| | | | | |
| **Gender** | | | | |
| Female | 281 | (30.0) | 33 | (24.8) |
| Male | 656 | (70.0) | 100 | (75.2) |
| | 937 | 100% | 133 | 100% |
| | | | | |
| **Race** | | | | |
| Majority | 694 | (74.1) | 102 | (76.7) |
| Minority | 242 | (25.9) | 31 | (23.3) |
| | 936 | 100% | 133 | 100% |
| | | | | |
| **Type of Offense** | | | | |
| Status | 29 | (3.1) | 2 | (1.5) |
| Misdemeanor | 671 | (71.8) | 98 | (73.7) |
| Felony | 207 | (22.2) | 31 | (23.3) |
| Other | 27 | (2.9) | 2 | (1.5) |
| | 608 | 100% | 133 | 100% |

**Table 7.**
**Descriptive Family Characteristics of Recidivists (*n* = 133) and Non-Recidivists (*n* = 937)**

| Characteristic | Non-Recidivist | | Recidivist | |
|---|---|---|---|---|
| | *n* | (%) | *n* | (%) |
| **Family Structure** | | | | |
| Both Parents | 368 | (41.8) | 55 | (42.0) |
| Single Parent | 356 | (40.4) | 59 | (45.0) |
| Parent/Step Parent | 109 | (12.4) | 11 | (8.4) |
| Other | 48 | (5.4) | 6 | (4.6) |
| | 881 | 100% | 131 | 100% |
| | | | | |
| **Marital Status of Biological Parents** | | | | |
| Married | 382 | (43.0) | 56 | (43.8) |
| Separated/Divorced | 333 | (37.5) | 49 | (38.3) |
| Never Married | 122 | (13.7) | 19 | (14.8) |
| Widowed | 52 | (5.8) | 4 | (3.1) |
| | 889 | 100% | 428 | 100% |
| | | | | |
| **Family Income** | | | | |
| Under $10,000 | 165 | (20.8) | 25 | (20.0) |
| $10,000-$24,999 | 201 | (25.3) | 46 | (36.8) |
| $25,000-$34,999 | 120 | (15.1) | 14 | (11.2) |
| $35,000-$49,999 | 131 | (16.5) | 15 | (12.0) |
| $50,000 & above | 178 | (22.4) | 25 | (20.0) |
| | 795 | 100% | 125 | 100% |
| | | | | |
| **Number of Children** | | | | |
| 1 to 3 | 713 | (81.5) | 103 | (79.8) |
| 4 to 6 | 156 | (17.8) | 25 | (19.4) |
| 7 & above | 6 | (0.7) | 1 | (0.8) |
| | 579 | 100% | 421 | 100% |

The greatest proportion of youth who recidivated were between the ages of 14 and 16 (70.0%) when they were first referred to the intervention program. Three fourths of the re-offenders were male (75.2%). Just over three fourths of recidivists (76.7%) were categorized as the racial majority (i.e., White/non-Hispanic) and a similar proportion of the racial majority was found for non-recidivists (74.1%) (See Table 6). Just under three fourths of recidivists (73.7%) and non-recidivists (71.8%) were originally referred for a misdemeanor offense. Just

under one fourth of recidivists (23.3%) and non-recidivists (22.2%) were referred for a felony offense. In terms of proportions, over twice as many youth who were non-recidivists committed status offenses (3.1%) than youth who were recidivists (1.5%) (See Table 6).

Over half of the youth who were recidivists (58.0%) and non-recidivists (58.2%) were identified as having family structures made up of a configuration other than both of their parents (See Table 7). Proportions of youth whose biological parents were reported as married, separated or divorced, or never married were similar for both the recidivists and non-recidivists. Just over half (56.8%) of cases that were recidivists and just under half of non-recidivists (46.7%) had reported their family income as below $24,999 a year (See Table 7).

Intervention Program Completion

Program completion status was documented by the program staff as either completed or failed to complete. Just under three fourths of the cases ($n = 759$; 70.8%) completed the intervention program. A little more than one fourth of the cases ($n = 309$; 28.8%) were reported as having failed to complete the requirements of the intervention program. Of the 1072 cases in the sample, four cases had missing data for this variable.

Bivariate Analyses of Interrelationships

The bivariate analyses were performed to explore the research question that asks what are the interrelationships among individual and psychosocial characteristics, psychosocial risk factors, type of offense, level of processing, program completion, and recidivism. Bivariate analyses required the aggregating of a number of variables. Race included two categories: youth in the racial minority category (Black/African American, Hispanic, Asian, and Other) and those in the racial majority (White/Caucasian/Non-Hispanic). Type of offense included three categories: status offense, misdemeanor offense, and felony offense. POSIT raw scores for

substance abuse, mental health, family, peer, educational, and aggressive behavior/delinquency risks were aggregated into categories that represented low, moderate, and high risk. This grouping coincides with the empirically established cut-off scores labeled as low, moderate, and high risk for each domain (Dembo & Anderson, 2005). Program completion was categorized as complete or non-complete. The one- and three-year recidivism variables were categorized as either recidivist or non-recidivist. All bivariate tables are reported in the format recommended in Morgan, Reichert, and Harrison (2002) for chi-square tests.

Individual Characteristics and Level of Processing

The entire sample was examined to explore the relationships between levels of processing and individual characteristics including age, race, gender, type of offense, family structure, marital status of biological parents, family income, and the number of children in the home. Among these characteristics, race, gender, type of offense, marital status of biological parents, and number of children in the home were significantly associated with level of processing. Age, family structure, and family income were not significantly associated with level of processing.

The association between race and level of processing was explored. Over three fourths (78.0%) of the informally processed youth and just over two thirds (69.5) of the formally processed youth were White/Non-Hispanic. Approximately one in five (22.0%) of the informally processed youth were a racial minority, and the proportion of youth from the racial minority group increased to just under a third (30.5%) for the formally processed youth. A 2 x 2 Chi Square analysis revealed that the relationship between race and the level of processing was significant, $\chi2$ (1, $N = 1065$) = 10.069, $p = .002$. As shown in Table 8, youth from the racial majority group were significantly more likely to be informally processed than those in the minority group.

**Table 8.**
**Race by Level of Processing**

| Level of Processing | Race | | |
|---|---|---|---|
| | Majority [White/Caucasian] (*n*=792) | Minority [Black/Afr-Amer/Hisp/Asian] (*n*=273) | Total |
| Informal (*n*=610) | | | |
| Row | 78.0% | 22.0% | 100% |
| Column | 60.1% | 49.1% | |
| | | | |
| Formal (*n*=455) | | | |
| Row | 69.5% | 30.5% | 100% |
| Column | 39.9% | 50.9% | |
| | | | |
| Total | 100% | 100% | |

*Note.* $\chi 2$ (1, $N = 1065$) = 10.069, $p = .002$.

In examining the relationship between gender and level of processing (See Table 9),

almost two thirds of those informally processed were male (65.6%) and just under one fourth of

those formally processed (23.0%) were female. A 2 x 2 Chi Square analysis indicated a

**Table 9.**
**Gender by Level of Processing**

| Level of Processing | Gender | | |
|---|---|---|---|
| | Male (*n*=750) | Female (*n*=314) | Total |
| Informal (*n*=608) | | | |
| Row | 65.6% | 34.4% | 100% |
| Column | 53.2% | 66.6% | |
| | | | |
| Formal (*n*=456) | | | |
| Row | 77.0% | 23.0% | 100% |
| Column | 46.8% | 33.4% | |
| | | | |
| Total | 100% | 100% | |

*Note.* $\chi 2$ (1, $N = 1064$) = 16.133, $p < .001$.

significant relationship between gender and level of processing, $\chi 2$ (1, $N = 1064$) = 16.133, $p <$

.001. As shown in Table 9, females were significantly more likely to be informally processed

than formally processed.

The relationship between type of offense and level of processing was analyzed. Of those

informally processed, the greatest proportion of youth committed misdemeanor offenses

(80.6%). Of those formally processed, the greatest proportion of youth was again found to have

committed misdemeanor offenses (60.4%).  A 2 x 4 Chi Square analysis revealed that the

relationship between type of offense and level of processing was significant, $\chi 2$ (3, $N = 1063$) =

90.395, $p < .001$. As seen in Table 10, status and misdemeanor offenses were significantly

associated with informal processing, while felony offenses were significantly associated with

formal levels of processing.

**Table 10.**
**Type of Offense by Level of Processing**

| Level of Processing | Type of Offense | | | | |
| --- | --- | --- | --- | --- | --- |
| | Status ($n$=31) | Misdemeanor ($n$=765) | Felony ($n$=238) | Other ($n$=29) | **Total** |
| Informal ($n$=608) | | | | | |
|     Row | 4.6% | 80.6% | 12.7% | 2.1% | 100% |
|     Column | 90.3% | 64.1% | 32.4% | 44.8% | |
| | | | | | |
| Formal ($n$=455) | | | | | |
|     Row | 0.7% | 60.4% | 35.4% | 3.5% | 100% |
|     Column | 9.7% | 35.9% | 67.6% | 55.2% | |
| | | | | | |
| Total | 100% | 100% | 100% | 100% | |

*Note.* $\chi 2$ (3, $N = 1063$) = 90.395, $p < .001$.

The relationship between the marital status of the youths' biological parents and level of

processing was examined. The proportions of youths whose parents were married were greater

for informal (59.4%) than formal (40.6%) levels of processing. Divorced or separated biological

parents were also found in greater proportions for informally processed youth (59.3%) than those formally processed (40.7%). However, a slightly greater proportion of youth whose biological parents were never married were formally processed (53.2%) than were informally processed (46.8%). A 2 x 4 Chi Square analysis showed a significant relationship between the marital status of the youths' biological parents and level of processing, $\chi2$ (3, $N = 1013$) = 8.255, $p = .041$. As shown in Table 11, a higher percentage of youth whose biological parents were married, divorced or separated, or widowed were associated with informal processing and a higher percentage of youth whose biological parents were single, never married were associated with formal levels of processing.

**Table 11.**
**Marital Status of Biological Parents by Level of Processing**

| | **Marital Status of Biological Parents** | | | | |
|---|---|---|---|---|---|
| **Level of Processing** | Married (*n=438*) | Divorced/ Separated (*n=378*) | Single/ Never Married (*n=141*) | Widowed (*n=35*) | **Total** |
| Informal(*n=585*) | | | | | |
| Row | 44.4% | 38.3% | 11.3% | 6.0% | 100% |
| Column | 59.4% | 59.3% | 46.8% | 62.5% | |
| | | | | | |
| Formal (*n=428*) | | | | | |
| Row | 41.6% | 36.0% | 17.5% | 4.9% | 100% |
| Column | 40.6% | 40.7% | 53.2% | 37.5% | |
| | | | | | |
| Total | 100% | 100% | 100% | 100% | |

*Note*. $\chi2$ (3, $N = 1013$) = 8.255, $p = .041$.

The association between the number of children in the home and level of processing was explored and a 2 x 3 Chi Square analysis revealed that the relationship was significant, $\chi2$ (7, $N = 1000$) = 6.901, $p = .032$. As shown in Table 12, offenders who lived in families with one to three children were more likely to be informally (59.7%) than formally (40.3%) processed.

Further, youth who lived in families with more than seven children were almost two and a half times more likely to be associated with the formally processed group (71.4%) than those informally processed (28.6%).

**Table 12.**
**Number of Children in the Home by Level of Processing**

|  |  | Number of Children | | | |
|---|---|---|---|---|---|
| **Level of Processing** |  | 1 to 3 (*n*=813) | 4 to 6 (*n*=180) | 7 + (*n*=7) | **Total** |
| Informal(*n*=579) |  |  |  |  |  |
|  | Row | 83.8% | 15.9% | 0.3% | 100% |
|  | Column | 59.7% | 51.1% | 28.6% |  |
|  |  |  |  |  |  |
| Formal (*n*=421) |  |  |  |  |  |
|  | Row | 77.9% | 20.9% | 1.2% | 100% |
|  | Column | 40.3% | 48.9% | 71.4% |  |
|  |  |  |  |  |  |
| Total |  | 100% | 100% | 100% |  |

*Note.* $\chi^2$ (7, *N* = 1000) = 6.901, *p* = .032.

Chi Square analyses were also performed to examine associations between level of processing and age, family structure, and family income; however, no significant associations were found. The relationship between age and level of processing was not significant, $\chi^2$ (6, *N* = 1063) = 3.886, *p* = .692. The results of a two-tailed independent samples t-test showed no significant difference in age between those informally and formally processed (t (1061) = -1.05, *p* = .293). The mean age was similar for youth processed at the informal level (*M* = 14.53; *SD* = 1.34) and at the formal level (*M* = 14.62; *SD* 1.34). The association between family structure and level of processing was not significant, $\chi^2$ (3, *N* = 1008) = 2.838, *p* = .417. The relationship between reported family income and the level of processing was also not significant, $\chi^2$ (4, *N*=917) = 5.443, *p* = .245.

The 357 cases with recorded POSIT scores were examined to explore the relationships between levels of processing and specific risk factors. These risk factors included substance abuse, physical health, mental health, family relationships, peer relationships, educational status, and aggressive behavior/delinquency. Among all risk factors, the family relationship risk factor was the only factor significantly associated with level of processing as indicated by a 2 x 3 Chi Square analysis, $\chi2$ (2, $N = 351$) = 11.928, $p$ = .003 (See Table 13). Youth at low and moderate family relationship risk were more likely to be informally processed, while those at high family

**Table 13.**
**POSIT-Family Relationship Risk by Level of Processing**

| | Family Relationship Risk | | | |
| | Low Risk ($n$=146) | Moderate Risk ($n$=139) | High Risk ($n$=66) | |
| **Level of Processing** | | | | **Total** |
| Informal ($n$=211) | | | | |
| Row | 42.2% | 44.5% | 13.3% | 100% |
| Column | 61.0% | 67.6% | 42.4% | |
| | | | | |
| Formal ($n$=140) | | | | |
| Row | 40.7% | 32.1% | 27.1% | 100% |
| Column | 39.0% | 32.4% | 57.6% | |
| | | | | |
| Total | 100% | 100% | 100% | |

*Note.* $\chi2$ (2, $N = 351$) = 11.928, $p$ = .003.

relationship risk were more likely to be formally processed. A greater proportion of youth at low family relationship risk was informally processed (61.0%), and youth at moderate risk were two times more likely to be informally (67.6%) than formally processed (32.4%). These proportions shift for youth at high family relationship risk, with over half (57.6%) of youth with high family relationship risk formally processed. The family relationship items on the POSIT examine

potential problems in communication, supervision, conflict, cohesiveness, family management, parental inconsistency, loose family structure, and lack of praise (Rahdert, 1991).

Chi Square analyses examining level of processing and POSIT identified risk factors, with the exception of family relationship risk, showed no significant associations. The relationships between level of processing and substance abuse risk ($\chi^2$ (2, $N = 351$) = 1.770, $p = .413$), physical health risk ($\chi^2$ (2, $N = 351$) = .962, $p = .618$), mental health risk ($\chi^2$ (2, $N = 351$) = 3.705, $p = .157$), peer relationship risk ($\chi^2$ (2, $N = 351$) = 2.960, $p = .228$), educational status risk ($\chi^2$ (2, $N = 351$) = 1.343, $p = .511$), and aggressive behavior/delinquency ($\chi^2$ (2, $N = 351$) = 4.845, $p = .089$) were not significantly associated.

Individual Characteristics and One-Year Recidivism

The associations between individual characteristics and recidivism at one year were examined. Among non-recidivists, 58.3% of youths were identified as informally processed and 41.7% were identified as formally processed (See Table 14). Among recidivists, 46.0% of youths

**Table 14.**
**Level of Processing by One-year Recidivism**

| One-year Recidivism | Level of Processing | | |
| | Informal (*n=610*) | Formal (*n=454*) | **Total** |
| --- | --- | --- | --- |
| Non-Recidivist (*n=977*) | | | |
| Row | 58.3% | 41.7% | 100% |
| Column | 93.4% | 89.6% | |
| | | | |
| Recidivist (*n=87*) | | | |
| Row | 46.0% | 54.0% | 100% |
| Column | 6.6% | 10.4% | |
| | | | |
| Total | 100% | 100% | |

*Note.* $\chi^2$ (1, $N = 1064$) = 4.993, $p = .025$.

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were identified as informally processed and 54.0% were identified as formally processed. As shown in Table 14, the relationship between level of processing and one-year recidivism was significant, $\chi2$ (1, $N = 1064$) = 4.993, $p = .025$. In terms of proportions, almost twice as many youth who were formally processed were recidivists (10.4%) as compared to youth who were informally processed (6.6%).

Chi Square analyses were performed between one-year recidivism and the remaining individual and family characteristics; however, no significant associations were revealed. The relationship between age and one-year recidivism was not significant, $\chi2$ (6, $N = 1067$) = 2.527, $p = .865$. A two-tailed independent samples t-test also showed no significant differences in age between recidivists and non-recidivists (t (1065) = -.969, $p = .333$). Further, the examination of the relationships between one-year recidivism and race ($\chi2$ (1, $N = 1069$) = 2.544, $p = .111$), gender ($\chi2$ (1, $N = 1070$) = 1.846, $p = .174$), type of offense ($\chi2$ (3, $N = 1067$) = 1.116, $p = .773$), family structure ($\chi2$ (3, $N = 1012$) = 1.733, $p = .630$), marital status of the youths' biological parents ($\chi2$ (3, $N = 1017$) = 4.510, $p = .211$), family income ($\chi2$ (4, $N = 920$) = 8.613, $p = .072$), and the number of children in the home ($\chi2$ (7, $N = 1004$) = 0.967, $p = .616$) showed no significant associations.

Intervention Program Completion and One-Year Recidivism

The relationship between program completion and one-year recidivism was examined, with most youth (91.9%) described as non-recidivists. Among non-recidivists, just under three fourths (71.9%) completed the program and a little over a fourth (28.1%) failed to complete the program. Among recidivists, almost two thirds (62.1%) completed the program and over a third (37.9%) did not complete the program. A 2 x 2 Chi Square analysis showed no significant

association between program completion and one-year recidivism, $\chi2$ (1, $N = 1068$) = 3.730, $p =$

.053.

POSIT Sub-Sample Psychosocial Risk Variables and One-Year Recidivism

The 357 cases with recorded POSIT scores were examined to explore associations

between one-year recidivism and POSIT risk factors. Employing Chi Square analyses, only one

of the risk factors identified by the POSIT, the educational status risk item, was significantly

associated with one-year recidivism, $\chi2$ (2, $N = 356$) = 6.605, $p = .037$. As shown in Table 15, a

greater proportion of recidivists were at lower educational status risk (52.2%) than those at

moderate (26.1%) and high risk (21.7%).

**Table 15.**
**POSIT- Educational Status Risk by One-Year Recidivism**

| One-Year Recidivism | Educational Status Risk | | | |
|---|---|---|---|---|
| | Low Risk (*n*=108) | Moderate Risk (*n*=176) | High Risk (*n*=72) | **Total** |
| Non- Recidivist (*n*=333) | | | | |
| Row | 28.8% | 51.1% | 20.1% | 100% |
| Column | 88.9% | 96.6% | 93.1% | |
| Recidivist(*n*=23) | | | | |
| Row | 52.2% | 26.1% | 21.7% | 100% |
| Column | 11.1% | 3.4% | 6.9% | |
| Total | 100% | 100% | 100% | |

*Note.* $\chi2$ (2, $N = 356$) = 6.605, $p = .037$.

The additional Chi Square analyses conducted to examine the relationships between risk

factors screened by the POSIT and one-year recidivism showed no significant associations.

These included substance abuse risk ($\chi2$ (2, $N = 356$) = 4.300, $p = .117$), physical health risk

($\chi2$ (2, $N$=356) = 2.103, $p$ = .349), mental health risk ($\chi2$ (2, $N$ = 356) = 1.684, $p$ = .431), family relationship risk ($\chi2$ (2, $N$ = 356) = 2.273, $p$ = .321), and peer relationship risk ($\chi2$ (2, $N$ = 356) = .280, $p$ = .869). Further, the relationship between aggressive behavior/delinquency risk and recidivism at one year was not significant, $\chi2$ (2, $N$ = 356) = 2.425, $p$ = .297.

Individual Characteristics and Three-Year Recidivism

The associations between individual characteristics and three-year recidivism were examined for the entire sample. Two characteristics, age and program completion, were significantly associated with three-year recidivism. Other individual characteristics were not significantly associated with three-year recidivism.

The relationship between age and three-year recidivism was analyzed. As shown in Table 16, a 2 x 7 Chi Square analysis revealed significant relationships between age and three-year recidivism, $\chi2$ (6, $N$ = 1067) = 12.959, $p$ = .044. In terms of proportions, youths who were 12 or 13 years old were more likely to be recidivists at three years. A two-tailed independent samples

**Table 16.**
**Age by Three-Year Recidivism\***

| Three-Year Recidivism | Age | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 10 (n=5) | 11 (n=19) | 12 (n=76) | 13 (n=119) | 14 (n=220) | 15 (n=303) | 16 (n=325) | Total |
| Non-Recidivist(n=934) | | | | | | | | |
| Row | 0.5% | 1.8% | 6.5% | 10.3% | 20.6% | 28.7% | 31.6% | 100% |
| Column | 100.0% | 89.5% | 80.3% | 80.7% | 87.3% | 88.4% | 90.8% | |
| Recidivist(n=133) | | | | | | | | |
| Row | 0.0% | 1.5% | 11.3% | 17.3% | 21.1% | 26.3% | 22.6% | 100% |
| Column | 0.0% | 10.5% | 19.7% | 19.3% | 12.7% | 11.6% | 9.2% | |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | |

*Note.* $\chi2$ (6, $N$ = 1067) = 12.959, $p$ = .044. \*Three cells (21.4%) had expected counts less than five.

t-test also showed that non-recidivists were significantly older ($M = 14.61$, $SD = 1.34$) than recidivists ($M = 14.27$, $SD = 1.37$) (t (1065) = 2.72, $p = .007$).

The relationship between program completion and three-year recidivism was examined with 935 (87.5%) non-recidivists and 133 (12.5%) recidivists. A greater proportion of youth who completed the program were non-recidivists at three years (72.2%) than recidivists (63.2%). Conversely, youth who did not complete the program were more likely to recidivate (36.8%) than not (27.8%). As shown in Table 17, a 2 x 2 Chi Square analysis indicated that the relationship between program completion and three-year recidivism was significant, $\chi2$ (1, $N = 1068) = 4.622$, $p = .032$. Youth who did not complete the program were more likely to recidivate than those who completed the intervention program.

**Table 17.**
**Program Completion by Three-Year Recidivism**

| Three-Year Recidivism | Program Completion | | |
|---|---|---|---|
| | Completed Intervention Program (*n=759*) | Did not Complete Program (*n=309*) | **Total** |
| Non-Recidivist(*n=935*) | | | |
| Row | 72.2% | 27.8% | 100% |
| Column | 88.9% | 84.1% | |
| | | | |
| Recidivist(*n=133*) | | | |
| Row | 63.2% | 36.8% | 100% |
| Column | 11.1% | 15.9% | |
| | | | |
| Total | 100% | 100% | |

*Note.* $\chi2$ (1, $N = 1068) = 4.622$, $p = .032$.

Additional Chi Square analyses conducted to examine the relationships between individual characteristics and three-year recidivism showed no significant associations. Specifically, the non-significant associations where identified between race ($\chi2$ (1, $N = 1069) =$

0.397, $p = .529$), gender ($\chi2$ (1, $N = 1068$) = 1.541, $p = .214$), type of offense ($\chi2$ (3, $N = 1067$) = 1.975, $p = .578$), family structure ($\chi2$ (3, $N = 1012$) = 2.278, $p = .517$), marital status of the youth's biological parents ($\chi2$ (3, $N = 1017$) = 1.645, $p = .649$), family income ($\chi2$ (4, $N = 920$) = 8.135, $p = .087$), the number of children living in the home ($\chi2$ (7, $N = 1004$) = 0.200, $p = .905$), level of processing ($\chi2$ (1, $N = 1064$) = 0.178, $p = .673$) and recidivating within three years.

POSIT Sub-Sample Psychosocial Risk Variables and Three-Year Recidivism

The 357 cases with recorded POSIT scores were examined to explore the association between three-year recidivism and POSIT risk factors. Only one of the risk factors identified by the POSIT, the educational status risk item, was significantly associated with three-year recidivism. As shown in Table 18, a 2 x 3 Chi Square analysis indicated the significant relationship, $\chi2$ (2, $N = 356$) = 8.562, $p = .014$. Over three fourths (80.2%) of the non-recidivists

**Table 18.**
**POSIT- Educational Status Risk by Three-Year Recidivism**

|  | Educational Status Risk | | | |
| --- | --- | --- | --- | --- |
| **Three-Year Recidivism** | Low Risk ($n=108$) | Moderate Risk ($n=176$) | High Risk ($n=72$) | **Total** |
| Non-Recidivist($n=333$) | | | | |
| Row | 27.7% | 52.5% | 19.8% | 100% |
| Column | 77.8% | 90.3% | 83.3% | |
| | | | | |
| Recidivist($n=23$) | | | | |
| Row | 45.3% | 32.1% | 22.6% | 100% |
| Column | 22.2% | 9.7% | 16.7% | |
| | | | | |
| Total | 100% | 100% | 100% | |

*Note.* $\chi2$ (2, $N = 356$) = 8.562, $p = .014$.

were among the low and moderate educational risk categories, and just over half (54.7%) of the recidivists more likely to be at moderate and high educational risk.

The other Chi Square analyses conducted to examine the relationships between risk factors screened by the POSIT and three-year recidivism showed no significant associations. These non-significant associations with three-year recidivism included substance abuse risk, ($\chi2$ (2, $N = 356$) = .854, $p = .653$), physical health risk ($\chi2$ (2, $N = 356$) = 1.245, $p = .537$), mental health risk ($\chi2$ (2, $N = 356$) = 4.423, $p = .110$), family relationship risk ($\chi2$ (2, $N = 356$) = 2.578, $p = .276$), peer relationship risk ($\chi2$ (2, $N = 356$) = 2.674, $p = .263$), and risk of aggressive behavior/delinquency ($\chi2$ (2, $N = 356$) = 3.443, $p = .179$).

The results of bivariate analyses showed associations between variables at the $p < .05$ level of significance. The variables significantly associated with level of processing included race, gender, type of offense, marital status of biological parents, number of children in the home, and POSIT family relationship risk level. The variables significantly associated with one-year recidivism were level of processing, POSIT educational status risk, and program completion. The variables significantly associated with three-year recidivism were age, POSIT-educational status risks, and program completion.

### Multivariate Analyses of Predictors for Dependent Variables

Multivariate analyses were performed using SPSS binary logistic regression to examine the research questions pertaining to what combination of individual and psychosocial characteristics, and psychosocial risk factors best predicts a) the level of processing in the juvenile justice system, b) recidivism at one-year, and c) recidivism at three-years. The dependent variables that were analyzed to measure these associations are binary measures of juvenile justice system outcomes. These outcome measures included level of processing,

identified as either informal or formal, and recidivism (both one and three year), coded as either yes or no.

Binary logistic regression was computed to identify the combination of independent variables that optimally classified cases into the dependent variables: level of processing, one-year recidivism, and three-year recidivism. The independent variables included age, gender, race, type of offense, family income, marital status of biological parents, family structure, number of children living in the home, program completion, and the individual POSIT risk factors (substance abuse, physical health, mental health, family relationships, peer relationships, educational status, and aggressive behavior/delinquency). Race, gender and program completion were dichotomous variables. Age was included in the logistic regression analysis as a continuous variable. Discrete variables, including type of offense, family structure, marital status of biological parents, family income, number of children in the home, and POSIT risk levels, were all recoded as dummy variables. For logistic regression, a variable that is initially discrete can be used if it is first converted into a set of dichotomous variables by dummy coding each individual item with 1s and 0s, representing the existence or non-existence of that specific factor (Tabachnick & Fidell, 2001). For example, type of offense was recoded into separate dummy variable of status offense (1) and non-status offense (0), misdemeanor (1) and non-misdemeanor (0), and felony (1) and non-felony (0). All POSIT scores were recoded as dummy variables for each risk factor. Thus, substance abuse risk was recoded as none to low risk (0) and moderate to high risk (1). Six logistic regression equations were developed and tested, three for the entire sample and three for the POSIT sub-sample.

A binary logistic regression was employed to identify the best model for classifying youth into one of two levels of processing. The predictor variables were the continuous variable,

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age and the categorical variables gender, race, type of offense, family income, marital status of

biological parents, family structure, and number of children living in the home. All variables

were entered together in the first step of the regression and the backwards stepwise method

followed. The stepwise method of logistic regression was used so that the inclusion and removal

of predictors from the equation could be based on statistical criteria to more appropriately ensure

entry of variables with coefficients different from zero (Tabachnick & Fidell, 2001). The

strength of association in the overall logistic regression model was assessed and is expressed

using the Nagelkerke $R^2$ statistic which describes how well the regression model explained the

variation in the dependent variable (SPSS Inc., 2006; Tabachnick & Fidell, 2001). The constant

is reported for the overall model in terms of how close expected and observed values are and

whether the model is a good fit (Tabachnick & Fidell, 2001).

Dependent Variable: Level of Processing

The results of this regression are presented in Table 19. The logistic regression

coefficients, Wald statistics, odds ratios and 95% confidence intervals for odds ratios for each of

the predictors are shown. The logistic regression coefficients, or the raw coefficients (column B

of Table 19), are interpreted as estimates for the effect of an individual variable, controlling for

the other variables in the equation (Tabachnick & Fidell, 2001). The B coefficient represents the

change in the actual logarithm of the odds ratio, which is harder to interpret than the odds ratio

(Tabachnick & Fidell, 2001). A positive B coefficient indicates that the predicted odds of the

outcome (i.e. dependent variable) increase as the predictor increases, and a negative coefficient

indicates that the predicted odds decrease as the predictor increases (Tabachnick & Fidell, 2001).

The Wald statistic is utilized to compute the significance levels for the independent variables

(Tabachnick & Fidell, 2001). The odds ratios, or the exponentiated value of the raw regression

coefficient, Exp(B), are used to interpret the change in the odds ratio associated with a 1-unit

increase in each predictor variable (Tabachnick & Fidell, 2001).

**Table 19.**
**Binary Logistic Regression Model Classifying Youth into One of Two Levels of Processing[a]**

| Predictor | B | SE | Wald $\chi^2$ | Exp(B) | 95% Confidence Interval | |
| --- | --- | --- | --- | --- | --- | --- |
| | | | | | Lower | Upper |
| Age | .115* | .053 | 4.646 | 1.122 | 1.010 | 1.246 |
| Gender | -.376* | .157 | 5.736 | .686 | .505 | .934 |
| Race | .366* | .168 | 4.717 | 1.442 | 1.036 | 2.005 |
| Type of Offense | | | | | | |
| -Status | -3.100** | .751 | 17.021 | .045 | .010 | .196 |
| -Misdemeanor | -1.248** | .162 | 59.407 | .287 | .209 | .394 |
| Married Status of Biological Parents | | | | | | |
| -Single/Never | .456* | .209 | 4.772 | 1.578 | 1.048 | 2.375 |
| Number of Children | | | | | | |
| -1 to 3 Children | -.424* | .177 | 5.764 | .654 | .463 | .925 |
| Constant | -.745 | .804 | .860 | .475 | | |

*Note*. *$p < .05$, **$p < .01$. Model: $\chi^2$ (7, $N = 967$) = 115.987, $p<.001$. [a] Model correctly classified 66.2% of the cases. Age ($M = 14.56$, $SD = 1.34$). Gender is male = 0 and female = 1. Race is majority = 0 and minority = 1. Informal processing is coded as 0 and formal processing as 1.

Employing a .05 criterion for statistical significance, gender, race, type of offense

(dummy variables status and misdemeanor), marital status of biological parents (dummy variable

single, never married), and the number of children living in the home (dummy variable 1 to 3

children) are predictors of level of processing and all had significant partial effects, as shown in

Table 19. This model was statistically significant, $\chi^2$ (7, $N = 967$) = 115.987, $p<.001,$ indicating

that these predictors distinguished between youth who were placed at an informal level of

processing and youth who were placed at a formal level of processing. A Nagelkerke $R^2$ of .152 indicates that the inclusion of seven variables in the model explained approximately 15% of the variance in the dependent variable. The model was able to correctly classify 66.2% of the formally processed cases as indicated by the predicted and observed classification statistic. This is considered acceptable in the social sciences (SPSS Inc., 2006; Tabachnick & Fidell, 2001).

The odds ratio for age (Exp(B) = 1.122) shows that youth above the mean age of 14.56 are more likely than youth below that age to be placed in formal processing. The odds ratio for gender (Exp(B) = .686) indicated that when holding other variables constant, a female youth was almost 31% less likely to be placed in formal processing than was a male. Minority youth were almost one and a half times more likely (Exp(B) = 1.442) to be placed in formal processing than were majority youth. Having a status (Exp(B) = .045) or misdemeanor (Exp(B) = .287) offense also predicted a decreased likelihood of the youth being placed in formal processing. A youth with a status offense was about 95% less likely to be formally than informally processed. A youth with a misdemeanor offense was almost 70% less likely to be formally than informally processed. The odds ratio for youth whose biological parents were single and never married indicated that those youth were one and a half times (Exp(B) = 1.578) more likely to be in the group that was formally processed. The odds ratio for families with one to three children (Exp(B) = .654) living in the home predicted a 35% lower likelihood of the youth being formally processed. In sum, inclusion in the formally processed group was significantly predicted by a youth being a minority male, over the age of fourteen and a half, whose biological parents were single and never married, who lived in a home with four or more children, and who did not commit a status or misdemeanor offense as their most serious delinquent act.

<u>Dependent Variable: Level of Processing with POSIT Sub-Sample</u>

A second binary logistic regression was employed to predict the probability of a youth being placed in either the informal or formal levels of processing with the subset of youth from the entire sample who had scores entered in the dataset from their POSIT risk screen. The predictor variables entered into the first step of the regression were the same as in the previous logistic regression; however, for this subset the POSIT risk scales were also included. These additional categorical predictor variables from the POSIT included substance abuse, physical health, mental health, family relationships, peer relationships, educational status, and aggressive behavior/delinquency.

The results of this regression are presented in Table 20. Employing a .05 criterion for statistical significance, age, race, and type of offense (dummy variable felony) are predictors of level of processing and all had significant partial effects; however, POSIT risk scores did not significantly predict a youth's level of processing. This model was statistically significant, $\chi_2$ (5, $N = 341) = 45.848$, $p<.001$, indicating that the predictors distinguished between youth who were placed at an informal level of processing vs. youth who were placed at a formal level of processing.  A Nagelkerke $R^2$ of .170 indicates that the inclusion of five variables in the model explained 17% of the variance in the dependent variable. The model was able to correctly classify 66.6% of the formally processed cases as indicated by the predicted and observed classification statistic.

In this subset, youth above the mean age of 14.47 were more likely to be placed in formal levels of processing (Exp(B) = 1.211). The odds ratio for race indicated that minority youth were two times (Exp(B) = 2.058) more likely than non-minority youth to be placed in a formal level of

processing. Youth with a felony offense were three times (Exp(B) = 3.005) more likely to be

formally processed than informally processed.

**Table 20.**
**Binary Logistic Regression Including POSIT Risk Scores Classifying Youth into One of Two Levels of Processing[a]**

| Predictor | B | SE | Wald χ2 | Exp(B) | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Age | .192* | .094 | 4.127 | 1.121 | 1.007 | 1.458 |
| Race | .722** | .268 | 7.264 | 2.058 | 1.218 | 3.478 |
| Type of Offense | | | | | | |
| -Felony | 1.100** | .268 | 16.905 | 3.005 | 1.779 | 5.078 |
| Married Status of Biological Parents | | | | | | |
| -Single/Never | .593 | .333 | 3.178 | 1.810 | .943 | 3.476 |
| Family Income | | | | | | |
| -$25,000 to $34,999 | -.628 | .361 | 3.024 | .534 | .263 | 1.083 |
| Constant | -3.669 | 1.399 | 6.876 | .026 | | |

*Note*. *$p < .05$, **$p < .01$. Model: $\chi_2$ (5, $N = 341$) = 45.848, $p<.001$. [a] Model correctly classified 66.6% of the cases. Age ($M = 14.47$, $SD = 1.29$), Race is majority = 0 and minority = 1. Informal processing is coded as 0 and formal processing is coded 1.

In summary, the risk factors screened by the POSIT did not significantly predict level of

processing; however, this model is similar to that generated by the logistic regression computed

with the full sample without POSIT risk factors. Minority youth who committed a felony offense

were significantly more likely to be formally processed. Further, this model also showed that

youth approximately age fifteen or older were significantly more likely to be formally processed.

<u>Dependent Variable: One-Year Recidivism</u>

Binary logistic regression was employed to predict the probability of a youth recidivating within one year of program placement. The predictor variables were age, gender, race, type of offense, family income, marital status of biological parents, family structure, and number of children living in the home. The predictor variables level of processing and program completion status were included with this model analysis and all subsequent recidivism prediction models. For each of the four logistic regressions examining recidivism, all variables were entered together in the first step of the regression and the backwards stepwise method followed.

The results of this regression are presented in Table 21. Employing a .05 criterion for statistical significance, income (dummy variables under $10,000, $10,000 to $24,999, and $50,000 and above), and program non-completion are predictors of one-year recidivism, and all had significant partial effects. This model was statistically significant, $\chi_2$ (8, $N = 965$) = 28.763, $p=.001$, indicating that the predictors distinguished between youth who were identified as one-year recidivists and those who did not recidivate. A Nagelkerke $R^2$ of .068 indicated that the inclusion of nine variables in the model explained approximately 7% of the variance in the dependent variable. The model was able to correctly classify 91.8% of the one-year recidivist cases as indicated by the predicted and observed classification statistic, which is considered very good in the social sciences (SPSS Inc., 2006; Tabachnick & Fidell, 2001).

The odds ratio for the income variables indicated that when holding other variables constant, youth from families with lower and upper-level income ranges were more likely to be recidivists at one year than those from families falling in the mid income range. Youth whose family income was under $10,000 were over eight times (Exp(B) = 8.213) more likely to be recidivists. Youth whose family income ranged from $10,000 to $24,999 were twelve and a half

**Table 21.**
**Binary Logistic Regression Model Explaining One-Year Recidivism[a]**

| Predictor | B | SE | Wald χ2 | Exp(B) | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Race | -.641 | .332 | 3.732 | .527 | .275 | 1.009 |
| Income | | | | | | |
| -Under $10,000 | 2.106* | 1.056 | 3.976 | 8.212 | 1.037 | 65.072 |
| -$10,000 to $24,999 | 2.532* | 1.030 | 6.046 | 12.579 | 1.672 | 94.660 |
| -$35,000 to $49,999 | 1.910 | 1.057 | 3.268 | 6.755 | .851 | 53.592 |
| -$50,000 and above | 2.112* | 1.038 | 4.145 | 8.268 | 1.082 | 63.177 |
| Marital Status of Biological Parents | | | | | | |
| -Married | .449 | .259 | 3.016 | 1.567 | .944 | 2.603 |
| Level of Processing | .407 | .241 | 2.860 | 1.502 | .937 | 2.408 |
| Program Completion | .522* | .256 | 4.163 | 1.685 | 1.021 | 2.783 |
| Constant | -4.892 | 1.031 | 22.527 | .008 | | |

*Note*. *p < .05, **p < .01. Model: χ2 (8, N = 965) = 28.763, p=.001. [a] Model correctly classified 91.8% of the cases. Race is majority = 0 and minority = 1. Level of processing is informal = 0 and formal = 1. Program completion = 0 and program non-completion = 1. Recidivism is coded as 1 and non-recidivism is coded 0.

times (Exp(B) = 12.579) more likely to be recidivists, and youth whose family income was

$50,000 and above were almost over eight times (Exp(B) = 8.268) more likely to be recidivists.

The odds ratio for youth who failed to complete the program indicated that when holding all

other variables constant, these youth were almost twice (Exp(B) = 1.685) as likely to recidivate.

In sum, youth from families with incomes under $24,999 or above $50,000, and who failed to

complete the program, were significantly more likely to recidivate at one year.

<u>Dependent Variable: One-Year Recidivism with POSIT Sub-Sample</u>

Binary logistic regression was employed to predict the probability of being a recidivist within one year of referral with the subset of youth who completed the POSIT risk scale (See Table 22). The predictor variables entered into the regression included age, gender, race, type of offense, family income, marital status of biological parents, family structure, number of children living in the home, level of processing, and program completion status with the addition of the

**Table 22.**
**Binary Logistic Regression Including POSIT Risk Scores Explaining One-Year Recidivism[a]**

| Predictor | B | SE | Wald $\chi 2$ | Exp(B) | 95% Confidence Interval Lower | Upper |
|---|---|---|---|---|---|---|
| Age | -.370 | .194 | 3.618 | .691 | .472 | 1.011 |
| Gender | -1.011 | .661 | 2.336 | .364 | .100 | 1.330 |
| Type of Offense | | | | | | |
| -Felony | -.997 | .624 | 2.548 | .369 | .109 | 1.255 |
| Income | | | | | | |
| -$10,000 to $24,999 | 1.550* | .727 | 4.547 | 4.714 | 1.133 | 19.601 |
| -$35,000 to $49,999 | 1.676* | .775 | 4.671 | 5.344 | 1.169 | 24.429 |
| -$50,000 and above | 1.254 | .762 | 2.706 | 3.503 | .787 | 15.601 |
| Marital Status of Biological Parents | | | | | | |
| -Married | 1.048* | .510 | 4.226 | 2.852 | 1.050 | 7.744 |
| Level of Processing | .934 | .512 | 3.325 | 2.545 | .932 | 6.945 |
| Program Completion | -1.130 | .714 | 2.503 | .323 | .080 | 1.310 |
| Constant | 1.231 | 2.736 | .202 | 3.424 | | |

*Note.* *$p < .05$, **$p < .01$. Model: $\chi 2$ (9, $N = 340$) = 23.191, $p=.006$. [a] Model correctly classified 93.8% of the cases. Age ($M = 14.47$, $SD = 1.29$). Gender is coded male = 0 and female = 1. Level of processing is informal = 0 and formal = 1. Program completion = 0 and program non-completion = 1. Recidivism is coded as 1 and non-recidivism is coded as 0.

POSIT risk factors. As with previous logistic regression analyses, a backwards stepwise method

was utilized. The results of this logistic regression are presented in Table 22.

Employing a .05 criterion for statistical significance, income (dummy variables $10,000

to $24,999 and $35,000 to $49,999) and marital status of biological parents (dummy variable

married) are predictors of one-year recidivism and all had significant partial effects; however,

POSIT risk scores did not significantly contribute to prediction of one-year recidivism. This

model was statistically significant, $\chi_2$ (9, $N = 340$) = 23.191, $p = .006$, indicating that the

predictors distinguished between youth who were identified as recidivists within one year and

those who did not recidivate within one year.  A Nagelkerke $R^2$ of .178 indicated that the

inclusion of nine variables in the model explained almost 18% of the variance in the dependent

variable. The model was able to correctly classify 93.8% of the one-year recidivist cases as

indicated by the predicted and observed classification statistic, which is considered very good

(SPSS Inc., 2006; Tabachnick & Fidell, 2001).

Dependent Variable: Three-Year Recidivism

A binary logistic regression was employed to predict the probability of a youth being a

recidivist within three years of program placement. The predictor variables entered into the

regression included age, gender, race, type of offense, family income, marital status of biological

parents, family structure, and number of children living in the home, level of processing, and

program completion status. The results of this regression are presented in Table 23.

Employing a .05 criterion for statistical significance, age, income (dummy variable

$10,000 to $24,999), and program non-completion are predictors of three-year recidivism and all

had significant partial effects. This model was statistically significant, $\chi_2$ (4, $N = 971$) = 19.941,

$p = .001$, indicating that the predictors distinguished between youts who were identified as three-

year recidivists and those who were not. A Nagelkerke $R^2$ of .038 indicated that the inclusion of

four variables in the model explained almost 4% of the variance in the dependent variable. The

model was able to correctly classify 87.1% of the three-year recidivist cases as indicated by the

predicted and observed classification statistic, which is considered good. (SPSS Inc., 2006).

**Table 23.**
**Binary Logistic Regression Explaining Three-Year Recidivism[a]**

| Predictor | B | SE | Wald $\chi 2$ | Exp(B) | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Age | -.178** | .069 | 6.674 | .837 | | |
| Income | | | | | | |
|   -$10,000 to $24,999 | .552** | .209 | 7.018 | 1.738 | 1.162 | 2.634 |
| Program Completion | .481* | .206 | 5.470 | 1.618 | 1.084 | 2.436 |
| Constant | .374 | .997 | .140 | 1.453 | | |

*Note.* *$p < .05$, **$p < .01$. Model: $\chi 2 (4, N = 971) = 19.941$, $p = .001$. [a] Model correctly classified 87.1% of the cases. Age ($M = 14.56$, $SD = 1.34$). Program completion = 0 and program non-completion = 1. Recidivism is coded as 1 and non-recidivism is coded as 0.

The odds ratio for age indicated that when holding other variables constant, youth below

the mean age of 14.56 when entering the intervention program were approximately 16% more

likely (Exp(B) = .837) to be a three-year recidivist. The odds ratio for youths from a family with

an income range from $10,000 to $24,999 indicated that when holding other variables constant,

youth were 1.74 times more likely to recidivate within three years.  Similarly, youth who failed

to complete the intervention program were over one and a half (Exp(B) = 1.618) times more

likely to recidivate within three years. In sum, inclusion of youth in the three-year recidivist

group was significantly predicted by a youth being below the mean age of 14.56, whose family

income ranged from $10,000 to $24,999, and who failed to complete the intervention program.

<u>Dependent Variable: Three-Year Recidivism with POSIT Sub-Sample</u>

Binary logistic regression was employed to predict the probability of recidivism at three years of referral with the subset of youth who completed the POSIT risk scale. The predictor variables included age, gender, race, type of offense, family income, marital status of biological parents, family structure, and number of children living in the home, level of processing, and program completion status with the addition of POSIT risk factors. All variables were entered together in the first step of the regression and the backwards stepwise method followed. The results of this regression are presented in Table 24.

**Table 24.**
**Binary Logistic Regression Including POSIT Risk Explaining Three-Year Recidivism[a]**

| Predictor | B | SE | Wald $\chi$2 | Exp(B) | 95% Confidence Interval Lower | Upper |
|---|---|---|---|---|---|---|
| Age | -.601** | .128 | 21.950 | .548 | .427 | .705 |
| Marital Status of Biological Parents -Married | .984* | .490 | 4.026 | 2.674 | 1.023 | 6.989 |
| Family Structure -Single Parent | .887 | .480 | 3.416 | 2.428 | .948 | 6.218 |
| Mental Health Risk | -.733* | .329 | 4.972 | .481 | .252 | .915 |
| Constant | 6.338 | 1.805 | 12.325 | .565 | | |

Note: *$p < .05$, **$p < .01$. Model: $\chi$2 (4, $N = 340$) = 31.418, $p<.001$. [a] Model correctly classified 85.0% of the cases. Age ($M = 14.47$, $SD = 1.29$), Mental Health is low risk = 0 and moderate and high risk = 1. Recidivism is coded as 1 and non-recidivism is coded as 0.

Employing a .05 criterion for statistical significance, age, marital status of biological parents (dummy variable married), and the POSIT- mental health risk factor are predictors of three-year recidivism and all had significant partial effects. This model was statistically

significant, $\chi_2$ (4, $N = 340$) $= 31.418$, $p<.001$, indicating that the predictors distinguished between youth who were identified as recidivists within three years and those who did not recidivate within three years.  A Nagelkerke $R^2$ of .155 indicated that the inclusion of four variables in the model explained approximately 16% of the variance in the dependent variable. The model was able to correctly classify 85.0% of the three-year recidivist cases as indicated by the predicted and observed classification statistic, which is considered acceptable (SPSS Inc., 2006; Tabachnick & Fidell, 2001).

In this subset, the odds ratio for age indicated that the likelihood of recidivism was 45% greater for youth falling below 14.47 years of age. Youth whose biological parents were married were over two and a half times (Exp(B) = 2.674) more likely to be recidivists within three years. Youth with moderate to high risk for mental health problems based on their POSIT results, were approximately 50% (Exp(B) = 0.481) less likely to be in the three-year recidivist group.

In sum, none of the risk factors screened by the POSIT predicted recidivism at three years; however, youth at moderate to high risk of mental health problems were less likely to recidivate within three years. Further, this model showed that youth between the ages of eleven and fourteen and whose biological parents were married were more likely to be classified as recidivist at three years.

Summary of Logistic Regression Equations

This study sought to identify the set of variables that optimally predicted youths' level of processing (informal vs. formal) and recidivism at one and three years. Analyses were undertaken with the entire sample and with a sub-sample for whom POSIT scores were available. Six equations were developed to identify both the best models that fit these data and the optimal predictor variables. Two equations examined predictors of level of processing. Two

equations examined recidivism within one year of referral to the intervention program, and the

remaining two equations explored predictors of three-year recidivism. All six final prediction

models were statistically significant at the $p < .05$ level or better; however, although statistically

significant, there are important difference in how well each model explained variance in the

dependent variables (See Table 25).

**Table 25.**
**Binary Logistic Regression Equations Summary**

| Model | Nagelkerke $R^2$ | Correctly Classified % |
|---|---|---|
| Level of Processing | .152 | 66.2 |
| POSIT Level of Processing | .170 | 66.6 |
| One-Year Recidivism | .068 | 91.8 |
| POSIT One-Year Recidivism | .178 | 93.8 |
| Three-Year Recidivism | .036 | 87.0 |
| POSIT Three-Year Recidivism | .155 | 85.0 |

In both cases where the full sample was used to analyze recidivism, a large amount of

variance was left unaccounted even though the models' ability to correctly classify cases was

very good. The one-year recidivism model explained approximately 7% of the variance in the

dependent variable and the three-year recidivism model explained less than 4%. These low

accountings suggest that, although the model and predictors were identified as significant, the

predictor variables have a small combined influence on recidivism.

Covariate patterns may be an issue when the fit of a model is assessed (Hosmer &

Lemeshow, 2000). Multicullinearity was considered in each of these models. As described in

Hosmer and Lemeshow (2000), the first test of each model was an examination of the estimated

standard error, and none of the six models contained aberrantly large estimated standard errors.

Secondly, as recommended in Agresti (1990), the predictors from each model were removed

individually and the model reanalyzed. The models with all the predictors described in Tables 19

- 24 consistently produced the highest $R^2$ values as well as highest percentage of cases with the

outcome correctly classified. In other words, removal of any one of the independent variables

(i.e. predictors) failed to produce a model that was more significantly predictive of any of the

dependent variables or account for more variance in the dependent variables. Further, goodness-

of-fit was assessed using a constant that was compared to each model inclusive of predictors and,

as recommended for logistic regression, the Hosmer-Lemeshow statistic (Hosmer & Lemeshow,

2000; Tabachnick & Fidell, 2001). For each model the expected frequencies, computed by the

Hosmer-Lemeshow goodness-of-fit statistic, were greater than five. This is considered

acceptable in the social sciences (Hosmer & Lemeshow, 2000).

# CHAPTER 5: DISCUSSION

This study is a longitudinal secondary analysis designed to compare and contrast first-time juvenile offenders enrolled in a community-based intervention program whose cases were processed either informally or formally. This study examines empirically- and conceptually-relevant contributors to re-offending. Primary areas of exploration included individual and psychosocial characteristics, psychosocial risk factors, and how these variables are associated with both level of juvenile justice processing and recidivism at one and three years.

This study builds on previous literature that has shown significant relationships between levels of processing, recidivism, and certain individual and psychosocial factors. The current study extends knowledge about juvenile offenders in several important ways. This study examines youth who are considered less severe in their delinquent behavior. These non-violent, first-time offenders are typically not the focus of current research (Loeber, Farrington, & Petechuk, 2003; Thornberry, Huizinga, & Loeber, 2004) and do not often command the attention of policy makers; however, these are the youth who are observed in the largest proportions in a system where formal processing is a significant predictor for further juvenile justice system involvement (Butts & Snyder, 1992; Smith & Paternoster, 1990; Snyder 1988). Developing knowledge about youth at the early stages of their involvement in the juvenile justice system may lead to more responsive interventions that decrease exposure to formal processes. Another unique aspect of this research is the broad scope of variables examined in association with level of processing. Previous research has primarily focused on demographic characteristics such as age, gender, and race (Smith & Paternoster, 1990; Snyder, 1988; Stahl et al., 2005). This current study includes an examination of family characteristics as well as psychosocial risk factors

which historically have not been explored in detail regarding youth at early levels of juvenile justice processing.

This chapter is organized around each specific research question. The results are interpreted in the context of previous research and the current state of knowledge. A description of the implications of this research for social work practice, education, and research is provided, and the limitations of the research are outlined to conclude this chapter.

<div align="center">Individual and Psychosocial Characteristics of First-time Juvenile Offenders</div>

Participants in this study consisted of male and female juvenile justice involved youth ($N = 1072$) who were first-time offenders. Participants were processed either informally or formally by the local juvenile justice system and all were referred to the same community-based intervention program in a non-urban setting in the deep South. The intervention program targeted non-violent first-time offenders using a balanced and restorative justice model. Participants in the current study differ from samples used in much of the juvenile justice research conducted to date, which typically involves large urban or metropolitan centers and predominantly, if not exclusively, male youth (Ezell, 1989; Huizinga, Esbensen, Weiher, 1991; Loeber et al., 1991; Loeber, Farrington, & Petechuk, 2003; Moffitt, 1993; Thornberry, Huizinga, & Loeber, 2004).

At the point of referral, the ages of youth in this study ranged from 10 to 16 ($M = 14.56$). The sample was skewed toward the older ages, with over half of the sample (58.9%) between the ages of 15 and 16. This distribution is consistent with national U.S. Department of Justice data in 2003, showing that approximately one third of juvenile arrests involved youth between the ages of 10 and 14 (37.3%), and approximately two thirds involved youth aged 15 and 16 (62.7%) (U.S. DOJ, 2004). It is important to note that the U.S. DOJ figures include all arrests, including those for violent crimes.

The distribution of gender in this study was consistent with that described in national samples. This study was composed of 70.6% males and 29.4% females, which is consistent with data gathered by the Federal Bureau of Investigation Uniformed Crime Report showing a similar proportion of female juvenile arrests (29%) in 2003 (Snyder & Sickmund, 2006). Similarly, the U.S. Department of Justice (2004) reported that just over a three quarters (78.2%) of all arrests for crimes in non-metropolitan areas involved males and just under a quarter (21.8%) involved females in 2003.

The racial composition of the youth in the study sample is also similar to the distribution of race seen in arrests of people under the age of eighteen in the U.S. Approximately three fourths of the study sample was White/Caucasian/Non-Hispanic (74.5%), just under one fourth was Black/African American (23.2%), and a much smaller proportion was Hispanic/Latino, Asian, or Other (2.3%). According to national data, arrests of persons under the age of eighteen showed a very similar distribution, with White/Caucasians representing 70.6% of arrests, Black/African Americans comprising 26.6% of arrests, and other race categories (i.e. American Indian, Alaska Native, Asian, and Pacific Islander) representing 2.9% of arrests (U.S. DOJ, 2004). However, the racial makeup of the region where this study sample was derived suggests a disproportionate representation of minority youth as first-time offenders in the juvenile justice system. According to the 2000 U.S. Census, 84.2% of the people living in this deep South geographic area where this sample was derived were White, 11.8% were Black, and 2.9% were Asian, Hispanic/Latino, Multiracial, or Other (U.S. Census Bureau, 2007).

At the time of referral to the intervention program, just over half (52.8%) were living with a single parent or parent and step-parent, and just over 40% were living with both of their biological parents. Over a third (37.6%) of the youth reported that their biological parents were

divorced or separated. This rate of divorce for the study sample was disproportionately higher than 2000 U.S. Census figures for the geographic area which reported marital status as 59.2% married and 12.4% divorced or separated (U.S. Census Bureau, 2007). These findings are consistent with the literature describing high proportions of delinquent youth living with single or divorced parents (Dornbusch et al., 1985; Steinberg, 1987; Wells & Rankin, 1991).

Family income information was reported with five range amounts, with just under two thirds (61.9%) of the youths' families reporting an annual income of at or below \$34,999. Although the reliability of self-reported income amounts is questionable, this finding is inconsistent with household income statistics collected by the 2000 U.S. Census showing that 37.1% of families in the same geographic area reported incomes at or below \$34,999 (U.S. Census Bureau, 2000). Thus, families in the lower income ranges are disproportionately represented in this sample of youth. In fact, families at the two lowest income ranges were disproportionately represented in this study. Over twice as many families reported incomes under \$10,000 (20.6%), as compared with census data showing that 8.0% of families in the geographic area reported incomes in the lowest range (U.S. Census Bureau, 2007). Over one fourth of the families in the sample fell within the \$10,000 to \$24,999 range (26.8%), while fewer than one fifth (16.9%) fell in that same range, according to census data (U.S. Census Bureau, 2007). In terms of family structure, over four fifths of families (81.3%) in the sample reported having one to three children ($M = 2.44$). The number of children ranged from one to eight, with a median of two.

Just under three fourths of the youth in this sample who were referred to the intervention program, which was designed for first-time non-violent offenders, were found delinquent for misdemeanor offenses (72.1%). Over two thirds of youth (70.8%) who were referred to the

intervention program completed it. This proportion is inconsistent with program evaluation data showing a 95% completion rate (YSB Annual Report, 2000). However, it should be noted that the agency's report was based on one year of outcome data, whereas this present study examined data over a five-year period. Conversely, the present study showed a lower one-year recidivism rate (8.1%) than that reported by the agency (9%). This difference could be due to the fact that the agency's program evaluation included 17 year olds (YSB Annual Report, 2000). Although the agency did not report a three-year recidivism rate, the current study showed that just over one in ten youth (12.4%) recidivated within three years.

Both the one-year and three-year recidivism rates yielded in the present study are lower than those reported in the much of the literature. For example, in Beck et al. (2007), 22% of the informally processed youth and 37% of the formally processed youth were shown to recidivate within two years. Snyder (1988) found 29% of females and 46% of males who came into contact with the juvenile court were repeat offenders. Further, in terms of a reduction in the rate of recidivism, Lipsey's (1999) meta-analysis showed typical juvenile justice programs reducing recidivism by 12%, with the best programs reducing recidivism by as much as 44%. One explanation for the program having such a low recidivism rate compared to Snyder's (1988) analysis is that this study included both informally processed and formally processed youth. Further, an explanation as to the difference with Lipsey's (1999) meta-analysis and the Beck et al. (2007) study is that this program specifically targets non-violent, first-time offenders. The programs included in Lipsey and Wilson's (1997) meta-analysis and the Beck et al. (2007) study were described as serving youth ranging from non-violent to much more serious offenses in the community.

Bivariate Associations: Level of Processing and Recidivism

This study sought to explore interrelationships and identify associations between individual and psychosocial characteristics, types of offense, and youths' level of processing (informal vs. formal) and recidivism. Analyses were undertaken with the entire sample ($N = 1072$) and with a sub-sample for whom POSIT scores were available ($n = 357$). Chi square analyses were utilized to identify statistically significant associations.

Associations with Level of Processing

Several independent variables were significantly associated with the dependent variable level of processing. These six variables were race, gender, type of offense, marital status of the biological parents, the number of children living in the home, and the POSIT family relationship risk score. All of these variables have been reported in the literature to be associated with delinquency; however, few have been shown to have a significant relationship with levels of juvenile justice processing.

In the current study, White/Non-Hispanic youth were more likely than Black/African American, Hispanic, Asian, or Other youth to be informally processed (78.0% vs. 22.0% respectively). The proportion of White/Non-Hispanic youth was shown to decrease in the formally processed (69.5%) group while the proportion of Black/African American, Hispanic, Asian, or Other youth increased (30.5%). This is consistent with the findings in the literature that describe racial disparities occurring at various decision points in the juvenile justice system (Snyder & Sickmund, 2006; Stahl et al., 2005). Studies have shown that Black/African American youth were petitioned for formal court proceedings at higher rates than White males (Stahl et al., 2005).

This current study found that a greater proportion of female youth were informally processed (66.6%) than formally processed (33.4%), while the proportion of males were more equitably represented (53.2% informally processed vs. 46.8% formally processed). This is consistent with the studies of youth showing that females are handled more often through informal processes at first referral than male youth (MacDonald & Chesney-Lind, 2001; Stahl et al., 2005).

Commission of a higher level of offense (i.e. felony) was associated more with formal than informal levels of juvenile processing in the current study. This finding is consistent with national studies of youth committing serious crimes against persons and more serious property crimes representing a greater proportion of formally processed cases (Stahl et al., 2005).

With regard to the family structure, the greatest proportion of youth associated with formal levels of processing in the current study were those youth whose biological parents were single, never married (53.2%). Although this variable has consistently been associated with delinquency (see e.g., meta-analysis by Wells & Rankin, 1991), the association with level of processing is limited in previous literature to studies showing that a greater number of self-reported juvenile court appearances are associated with the absence of a father in the home (Johnson, 1989). The current study is consistent with the limited evidence directly associating the marital status of biological parents with the youth's level of processing.

The number of children in the home of the youth was significantly associated with level of processing. Families reporting fewer than five children in the home were more likely to be informally processed. Conversely, families reporting five to seven children in the home were more likely associated with formal processing. Although research has shown youth from families with four or more children have an increased rate of offending in general (Wasserman &

Seracini, 2001; West & Farrington, 1973), the association of family size with level of processing has not emerged in previous studies. Although not examined in this current study, family size may be associated with family income, which has been previously shown to be associated with delinquency rates (Rosen, 1985).

In the current study, youth at high risk in their family relationships were more likely to be formally (57.6%) than informally processed. Youth who were at low or moderate risk on the POSIT family relationship factor were associated with informal processing in greater proportions. Family management problems and family conflict emerge as correlates with delinquency in studies conducted by numerous researchers (Derzon & Lipsey, 2000; Hawkins, 1995; McCord, 1979; Wasserman & Seracini, 2001). However, the association between family relationship risk factors and this early level of juvenile justice system processing has not emerged in previous research. This and the other family characteristics (biological parents that were single/never married and number of children in the home) are important to highlight. There is little known from previous research in regards to how these family factors impact decision making at the earliest, informal levels of juvenile justice involvement. In fact, studies looking at family composition and functioning are usually related clinical assessments and their described impact on decision making at the formal level of processing and subsequent court dispositions (Cauffman, Piquero, Kimonis, Steinberg, Chassin, & Fagan, 2007; Niarhos & Routh, 1992).

Other common psychosocial risks associated with delinquency among male youth include substance abuse, mental illness, educational failure, delinquent peer associations, and aggressive behavior (Hawkins, 1995; McCabe, 2002; Thornberry, Huizinga, & Loeber, 2004). Among female youthful offenders, research has shown delinquency to be associated with drug use, academic failure, and chronic health problems (Acoca, 1999, Acoca & Dedel, 1998; Belknap,

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Holsinger, and Dunn, 1997; Chesney-Lind & Pasko, 2004). It was anticipated that these factors that have been empirically linked to the development of delinquent behavior would also emerge in this sample of first time offenders. However, no significant associations were found between such risk factors and level of processing. Prospective study of a similar sample of first-time offenders is recommended to further examine whether offense history is weighed more heavily than psychosocial risk factors in processing decisions.

Associations with Recidivism

Chi Square analyses were performed to examine associations between individual and psychosocial characteristics and recidivism. The findings showed that two variables were significantly related to one-year recidivism (level of processing and the POSIT- educational risk score) and three variables were related to three-year recidivism (age, program completion, and the POSIT-educational risk score).

In the present study, youth who had been formally processed were more likely to be among those who recidivated at one year. This is consistent with the findings of Smith and Paternoster (1990) and Snyder (1988) demonstrating an association between formal processing and higher rates of re-offending.  This relationship is also consistent with studies showing a relationship between informal processing and lower rates of re-offending (Butts & Snyder, 1992; Davidson, et al., 1987; Regoli, Wilderman, & Pogrebin, 1985). Some studies have found that formal processing was associated with lower subsequent re-offense (Brown et al., 1991; Gensheimer and Associates, 1986; Whitehead & Lab, 1989). However, it is likely that the relationship between higher recidivism and formal levels of processing may be due to the fact that formally processed youth were under the additional supervision of court probation services

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or simply that these youth were processed for more serious offenses. The relationship between level of processing and type of offense supports this.

The current study yielded a significant association between the presence of risk in the youths' educational status and recidivism at both one and three years. In previous studies, low academic achievement, truancy from school, and frequent relocations to new schools have been attributed to higher rates of both initial and subsequent offending (Gottfredson, 1988; Hawkins, 1995; Herrenkohl et al., 2001). The role of education risk factors warrants more systematic investigation given that studies have shown that a school dropout is more than eight times as likely to be incarcerated in jail or prison as compared to a person with a high school diploma (National Research Council and Institute of Medicine, 2001).

In the current study, younger offenders were more likely than older offenders to recidivate at three years. These finding are consistent with studies showing early age of onset of problematic behaviors with progression to re-offending (Snyder, 1988; Thornberry, Huizinga, & Loeber, 2004). Further, these findings are consistent with the literature describing the different developmental pathways of delinquency. For example, the authority conflict pathway describes stubborn behavior developing before age 12, which then progresses to specific delinquent acts in early to mid adolescence (Thornberry, Huizinga, & Loeber, 2004). In a similar vein, the covert pathway identifies an age of onset of 15 years or earlier that includes minor delinquent behaviors (e.g. shoplifting) progressing into moderate to serious delinquent offenses (e.g. theft, burglary and fraud) (Thornberry, Huizinga, & Loeber, 2004).

Program completion is significantly associated with three-year recidivism in the current study, in that youth who failed to complete the intervention program were observed in greater proportions to be recidivists (15.9%) than those youth who completed the intervention program

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(11.1%). These findings are consistent with the literature that describes similar community-based

restorative justice programs that are shown to be effective in reducing the likelihood of

recidivism (Rodriquez, 2007). The current study does not specifically examine the impact of

program participation on recidivism, thus, recidivism rates may have been influenced by process

variables, such as program components that were delivered with greater intensity and frequency.

Some findings were inconsistent with previous literature. For example, the absence of a

significant association between recidivism and risk factors such as mental health, substance

abuse, family conflict, and peer relationships was unexpected (Dembo, Turner, Schmeidler, Sue,

Borden & Manning, 1996; Thornberry, Huizinga, & Loeber, 2004). This may be due to the fact

that the youth in the current study were non-violent, first-time offenders. On the other hand, this

finding may be due to validity problems of the POSIT with this particular subgroup of offenders,

but would be inconsistent with the limited research to date on the POSIT which has shown its

utility in predicting recidivists (Dembo, Turner, et al., 1996).

<center>Multivariate Predictors: Level of Processing and Recidivism</center>

This study sought to identify the set of variables that optimally predicted youths' level of

processing (formal vs. informal) and recidivism at one and three years. Analyses were

undertaken with the entire sample ($N = 1072$) and with a sub-sample for whom POSIT scores

were available ($n = 357$). Thus, six equations were developed to identify both the best models

that fit these data and the optimal predictor variables.

Predictors of Level of Processing

This study showed that youths' level of processing was predicted by age, gender, race,

type of offense, marital status of biological parents, and the number of children in the home.

Male felony offenders, over the age of fifteen, who were members of a racial minority group,

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whose biological parents were single and never married, and who lived in large families were more likely to be formally than informally processed. These findings are consistent with the literature describing the demographic characteristics of juvenile offenders. For example, female offenders appear to enter into juvenile offending via status offenses more so than males (Acoca, 1999; MacDonald & Chesney-Lind, 2001). Males comprised over two thirds of the sample in the current study, yet they represented just over half of the status offenders. Females represented less than a third of the sample, but comprised well over a third of the status offender group. Further, being a member of a racial minority is associated with formal rather than informal levels of processing in the literature (Stahl et al., 2005).

The present study yielded findings emphasizing the predictive ability of a number of family structure variables with respect to level of processing. Previous research has shown a relationship between family size and recidivism, with youth from families with four or more children offending with greater frequency than those from smaller families (Wasserman & Seracini, 2001; West & Farrington, 1973). However, the influence of this variable on processing decisions has not emerged in previous studies. In a similar vein, the finding that youth whose parents are single, never married were more likely to be formally than informally processed has not emerged in previous studies except for Johnson's (1989) study showing the association between families with absent fathers and frequency of court appearances. Because processing decisions have been shown to influence outcomes (Smith & Paternoster, 1990; Snyder, 1988) the findings of this study suggest that family structure variables may be equally as important as individual characteristics when determining at which level offenders are processed. Additional research, therefore, is warranted to examine the role of family structure in processing decisions, and whether certain factors constitute greater risk for youth entering the juvenile justice system.

A similar unexpected finding was yielded by a second regression equation that examined predictors of level of processing. For this latter equation, the psychosocial risk variables included in the POSIT screening instrument (in addition to the other independent variables) were entered into the model. Although the model was statistically significant, indicating that the set of predictors distinguished between youth who were formally processed from those who were informally processed, none of the psychosocial risk factors (as measured with the POSIT) significantly contributed to the final model. This is inconsistent with previous research showing mental health and substance abuse problems overrepresented among youth processed formally (Cocozza & Skowyra, 2000). This could be due to the characteristics of the sample or due to measurement error. It may be prudent, therefore, to develop an additional model that includes POSIT scores as continuous, rather than categorical data; however, according to Dembo and Anderson (2005), youths' total scores in each psychosocial risk category can be compared to empirically-based cut-off scores allowing for a classification of low, moderate, or high risk for that psychosocial risk area.

Predictors of Recidivism

Income and program completion significantly predicted recidivism at one year. Youth whose family incomes were either below $24,999 or above $50,000 and who failed to complete the program were more likely to recidivate at one year than not recidivate. Similar to level of processing, recidivism at one year was not explained by the inclusion of psychosocial risk factors. Predictors of recidivism at three years were identified via two logistic regression models, one that included the independent variables used to examine recidivism at one year, and one that added the POSIT risk factors. Inclusion of youth in the three-year recidivist group was significantly predicted by youth being under the age of fourteen at referral, whose family income

ranged from $10,000 to $24,999, and who failed to complete the intervention program. Both the one- and three-year models that included POSIT risk factors showed that youth whose biological parents were married were more likely to be recidivist than non-recidivists. Further, the latter model predicted that youth with moderate to high mental health risk were less likely to be recidivists than non-recidivists within three years.

The findings on age are consistent with previous studies showing age of onset as a predictive factor in recidivism (Loeber, Farrington, & Petechuk, 2003; Thornberry, Huizinga, & Loeber, 2004). These studies have shown younger first-time offenders are more likely to re-offend. Coupled with the previous findings in Ezell (1989) showing participation in early intervention programs increasing the likelihood of an offender receiving a harsher sentence if he or she is rearrested, age, program participation, and subsequent re-offending are strong potential predictors for poor outcomes in the juvenile justice system, which warrant further study.

The present study also yielded findings emphasizing the predictive ability of family structure variables with recidivism. This is consistent with previous research that has shown a relationship between lower family income and offending (Rosen, 1985). However, in the current study, youth from families with income $50,000 and above were more likely to recidivate within one year. This finding has not emerged in previous studies. This could be due to the characteristics of the sample, which has almost one fourth of families reporting in this income range, or, since the same factor did not significantly predict recidivism at three years, it could be that higher family income afforded these youth a different level of participation in the program components. For example, they may have elected to use family financial resources to pay monetary restitution incurred by the youth's delinquent acts instead of the youth participating in increased community service hours or they may have elected to use private counseling resources

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instead of those offered within the program. Regardless of either speculation, this current study

does not examine the impact of participation in specific program components on recidivism.

In the current study examining the subset of youth with POSIT scores, being in both the

one- and three-year recidivist groups was predicted by a youth having biological parents who are

described as married. This finding is not consistent with previous studies that have shown youth

living in single-parent and divorced families to be more likely to engage in delinquent behavior

(Dornbusch et al., 1985; Johnson, 1989; Steinberg, 1987). However, this finding may be

associated with what previous studies have described as family management problems or

parental conflict (Patterson & Dishion, 1985; Farrington, 1991; McCord, 1979; Peterson et al.,

1994; Thornberry, 1994). It is inconsistent however, that the family relationship risk score on the

POSIT was not significantly associated with recidivism in this study, although it has been shown

to be a valid screen for these types of family problems (Rahdert, 1991). Again, these inconsistent

findings may be due to sample characteristics or due to validity problems on the POSIT with this

particular subgroup of offenders.

The current study explores overall program completion and shows it as a significant

predictive factor for recidivism within one and three years of referral. Youth who failed to

complete the program were more likely to recidivate than those that completed. These findings

are consistent with previous studies that describe completion of community based interventions

for youth involved with the juvenile justice system and subsequent recidivism (Luchansky,

Lijian, Longhi, Krupski, & Stark, 2006; Mears & Kelly, 2002; Myers, Burton, Sanders, Donat,

Cheney, Fitzpatrick, & Monaco, 2000). Further, Barnoski (2004) showed that programs that

failed to be implemented with fidelity, meaning the program components were not delivered with

the quality, quantity, and frequency as originally designed, were associated with increased recidivism.

In the current study, the predictive model resulting from the analysis of the POSIT sub-sample produced the sole predictor from the POSIT psychosocial risk scores. In this model, youth scoring as moderate to high risk on the POSIT mental health factor were 52% less likely to be placed in the recidivist group. This finding is inconsistent with the previous finding that indicated the POSIT was a valid measure in regards to predicting recidivism (Dembo, Turner, et al., 1996). In light of such a finding, a Cronbach alpha was performed on the 357 cases in this study with complete POSIT scores. The Cronbach alpha is a measure of consistency among individual items in a scale (SPSS Inc., 2006). The analysis of the internal consistency for the original raw scores of the POSIT produced a Cronbach alpha of .788. Performing the analysis again on the recoded data of the POSIT (i.e. raw scores converted to low, moderate, high risk) produced a Cronbach alpha of .740, suggesting the internal consistency of the items remained sufficient. In the literature an acceptable alpha level for internal consistency among individual items is above 0.7 (Nunnally, 1994). Consistent with the unexpected findings related to the POSIT and psychosocial risk described earlier, further exploration of the validity, reliability and utility of this screening instrument is warranted.

<div align="center">Implications</div>

Implications for Intervention and Practice

The findings describing first-time youthful offender characteristics and their association with level of processing and recidivism have important implications for social workers practicing within the juvenile justice system and its associated community-based service agencies. Results suggest that both the characteristics of the individual youth and his or her family have direct

affects on how that youth is processed within the system and the predicted outcomes. Risk-focused prevention is a cornerstone of modern public health approaches and translates well to a juvenile justice population in need of preventive intervention (Hawkins, 1995; Hawkins, Catalano & Miller, 1992; Howell, 1995). It is hoped that a profile of the youth, including risk factors most associated with higher levels of processing and recidivism, might assist in the development of approaches to service delivery to intervene at the points of greatest risk. This can provide social work practitioners with a guide for developing programs of prevention and effective, early interventions to reduce the likelihood of juveniles entering or re-entering the justice system.

A thorough assessment yields important data that directs practitioners to correct processes and interventions which are most appropriate for interrupting and arresting patterns predictive of chronic juvenile offending (Grisso, Vincent, Seagrave, 2005). The current study and previous studies such as Niarhos and Roth (1992), provide evidence in support of carefully evaluating psychosocial characteristics of the youth and his or her family in order to best intervene in targeted risk areas at early levels of juvenile justice processing. The findings of the current study were inconsistent with previous studies regarding the validity of the POSIT (see e.g., Dembo & Anderson, 2005) in screening for psychosocial risk known to be associated with juvenile offending. The study also offered no consistent findings of the predictive nature of the POSIT in regards to a youth's risk of recidivism as shown in previous studies (Dembo, Turner, et al., 1996). Further examination of the reliability of this instrument is recommended, as it is promoted by the National Institute on Drug Abuse for use in a wide variety of settings, including juvenile justice, yet has very few studies of its validity and reliability in the literature.

Resource allocation is another substantial issue for practitioners and systems (Aos, Phipps, Barnoski, & Lieb, 2001; Robertson, Grimes, & Rogers, 2001). Social work practitioners serving the juvenile justice system have limited resources to provide to a large population of juvenile offenders. Based on the findings of this study, very few first-time juvenile offenders progress into the re-offending group. Being able to identify the factors that place youth most at risk of recidivism is one way to manage valuable resources and direct them to those most in need.

Although it was not the purpose of the study to evaluate the effectiveness of the intervention program, the findings support the need to look further at the methodology employed by an intervention program that appears to have favorable outcomes in terms of low rates of recidivism with the youth who complete the program. The programs in the literature describing themselves as Balanced and Restorative Justice models appear to vary widely in the methods and dosage administered to the youth they serve (Frievalds, 1996; Rodriquez, 2007; Schneider, 1986). Greater knowledge of the specific methods prescribed by this program could benefit social work practitioners challenged to design and implement effective approaches for youth entering the juvenile justice system (Barnoski, 2004; Mears & Kelly, 2002; Potocky-Tripodi & Tripodi, 1999).

From a policy perspective, it would be important for social workers to become involved in education and advocacy efforts geared towards acknowledging disproportionate representation of lower income and minority youth in the more formal levels of processing (Stahl et al., 2005). Social workers should also work to raise the overall awareness of the predictive nature of such processing as it relates to recidivism, even when type of offense is factored into the equation. As the juvenile justice system has been described to have drifted from its initial rehabilitative nature

to a more punitive one by Butts & Harrell (1998), it is critical for social work practitioners to encourage policy and budgetary support for programs that effectively intervene at a community level and, when in the best interest of public safety, help keep youth out of more formalized processes.

<u>Implications for Education</u>

Social work educators are responsible for preparing students for the types of social problems and challenges which they will be working as the enter practice settings (Council on Social Work Education, 2007). It is the primary responsibility of social work educators to familiarize students with the different settings in which social work can effectively practice, including the opportunities which exist within the juvenile justice system. Social work practitioners need to be educated about the individual and psychosocial characteristics that place youth at greatest risk for offending and re-offending. Training for practitioners regarding the assessment of psychosocial risk is critical given the extensive body of literature consistently linking, particularly male youth, with higher risk of offending and re-offending (Catalano & Hawkins, 1995; Thornberry, Huizinga, & Loeber, 2004). As models of intervention are typically taught as part of any clinically oriented social work program, models of effective intervention targeting youth and families associated with the juvenile justice system should also be taught.

Related to this last point, the division between social work and much of the emphases of criminal justice has become increasing less obvious. Forensic social work is a growing field and social work students need to be aware of the extent to which the juvenile justice system involves a large segment of vulnerable and disadvantaged segments of the population. Being able to effectively perform social work and navigate among the many disciplines involved in most juvenile justice settings is a critical area for further exploration in teaching students about real

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world practice applications in the classroom. This fits well with the psychosocial, developmental and ecological theoretical approaches already taught in the average social work curricula (Compton & Galaway, 1989; Zastrow & Kirst-Ashman, 1990).

Implications for Research

According to Potocky-Tripodi and Tripodi (1999), there are a number of critical areas for the development of Social Work research, which include research that enriches the field's understanding of individuals, families, groups, communities, policies, and practices with which social work is applied. The results of this study indicate that age, gender, race, marital status of the biological parents, family income, number of children in the home, family relationship risk, educational status, mental health risk, and type of offense all had varying associations with level of processing and or recidivism. Further, failing to complete the intervention program had both a significant association and predictive value in regards to recidivism. Social work practitioners who are working with youthful offender populations are responsible for implementing and supporting empirically based interventions, evaluating the effectiveness of those interventions, and advocating in the best interest of their clients (Compton & Galaway, 1989; Potocky-Tripodi & Tripodi, 1999). Evidence of successful interventions can further substantiate the need for increased resource allocation and utilization (Aos et al., 2001). Evidence of non-successful interventions, with predictably poorer outcomes, substantiate the need for decreased utilization or system change (Aos et al., 2001). This study supports the further investigation of screening and assessment instruments, level of processing, and methods of intervention with first-time juvenile offenders.

Limitations of the Research

The limitations of this research include problems associated with measurement and secondary analysis with data largely based on self-report, lack of external validity, and a lack of program participation data. Each of these areas is discussed below.

Measurement

The data used for this study were obtained from an archival database. Measurement is inherently limited by the nature of secondary analysis. According to Rubin and Babbie (1993), a limitation of secondary analysis is that the validity of the data is dependent upon how closely the questions of the current study resemble those originally intended by the initial means of data collection. In other words, questions and responses may come close to the need of the current study, but will be limited by how well that data are collected and is similar in content to the intended use of the original dataset.

Much of the data used in this study were a product of the self-report of program participants. The reliability of self-report data can be questionable (Rubin & Babbie, 1993). It is possible that the juvenile and caretaker respondents in this sample provided answers in a biased manner to avoid scrutiny or a negative evaluation from staff. This is described in the literature as a social desirability bias (Rubin & Babbie, 1993). The use of valid and reliable measures are expected to enhance the reliability of self-report data (Rubin & Babbie, 1993). In this study, the POSIT was expected to be such a tool due to the literature supporting it as a valid and reliable measure of specific psychosocial risks (Dembo & Anderson, 2005). However; the findings of the current study were inconsistent with previous research supporting the use of the POSIT in identifying psychosocial risk.

There are also limitations associated with the use of recidivism as an outcome measure. According to Snyder and Sickmund (2006), most of the literature on delinquency and recidivism is based on official records. Therefore, virtually all measures of re-offending underestimate re-offense rates since they only reflect offenses that are brought to the attention of the system (Snyder & Sickmund, 2006). In the current study, these same limitations apply. Only youth who were re-arrested and re-referred to the district attorney or court for the commission of another delinquent offense following the offense for which he or she was originally referred for intervention were counted as recidivists.

External Validity

Another limitation of this study is the lack of external validity. Consistent with the limitation of secondary analysis, findings are restricted to the sample and no causal inferences can be made (Rubin & Babbie, 1993). Representativeness is limited and the findings will not be generalizeable to the population of first-time juvenile offenders (Rubin & Babbie, 1993). Given the proper yet extensive protections placed on accessing and studying youthful offenders and the prohibitive costs associated with a representative longitudinal analysis of this type, the limitations associated with the study methodology were acceptable and practical. It is hoped however, that this information will serve as a basis for further investigation of interventions and outcomes with first-time youthful offenders in the juvenile justice system.

Program Participation Data

Potocky-Tripodi and Tripodi (1999) propose that social work research needs to take on conceptual and methodological directions including generating more knowledge about what interventions work, for whom, and under what conditions. The dataset for this current study lacked information on the program components that would be necessary to tease apart the

significant associations between individual items and outcomes such as program completion and recidivism.

## Conclusions

A greater understanding of the factors that are associated with and predict level of juvenile justice processing and recidivism for first-time juvenile offenders is critical to the success of the juvenile justice system and its associated intervention efforts as this is the group of youth active in the system in the largest proportions at any given time. This study lends to that understanding and offers analysis of both male and female youth in a non-urban setting as well as family structure and its association with level of processing, which are unique attributes compared with the juvenile justice studies in the literature. Statistically significant relationships were revealed associating race, gender, type of offense, marital status of the biological parents, the number of children living in the home, and family relationship risk with level of processing for first time juvenile offenders in a juvenile justice system. In prediction of three-year recidivism for the entire sample of 1072 youth, age, family income, and failure to complete the intervention program all emerged as statistically significant predictive factors.

The findings indicate that there are practice, policy, education, and research implications for social work practitioners and other professionals working with the juvenile justice system. Replication of this research is warranted to continue to expand the understanding of both male and female offenders from non-urban environments. It is recommended that the investigation be replicated with a more representative sample so that generalizations can be made to the larger population. Further, utilization of other standardized measures of psychosocial risk are warranted to compare findings with this study in hope of discovering reliable measures of critical risk

factors associated with early levels of juvenile justice processing as well as juvenile offending and re-offending.

# REFERENCES

Acoca, L. (1999). Investing in girls: A 21st century strategy. *Juvenile Justice, 6* (1), 3-13.

Acoca, L. & Austin, J. (1996). *The hidden crisis: The women offenders sentencing study and alternative sentencing recommendations project.* San Francisco, CA: National Council on Crime and Delinquency.

Acoca, L. & Dedel, K. (1998). *No place to hide: Understanding and meeting the needs of girls in the California juvenile justice system.* San Francisco, CA: National Council on Crime and Delinquency.

Agresti, A. (1990). *Categorical data analysis.* New York, NY: John Wiley & Sons / Wiley-Interscience Publisher.

Alexander, J. F., Pugh, C., Parsons, B. V., Sexton, T. I. (2000). Functional family therapy. In D.S. Elliot (Ed.), *Blueprints for violence prevention.* 2nd ed. Boulder, CO: Center for the Study and Prevention of Violence, Institute of Behavioral Science, University of Colorado.

Alexander, J.F., & Parsons, B.V. (1973). Short-term family intervention: A therapy outcome study. *Journal of Consulting and Clinical Psychology, 2,* 195-201.

American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders,* Fourth Edition, Text Revision. Washington, DC: American Psychiatric Association.

Aos, S., Barnoski, R., & Lieb, R. (1998). *Watching the bottom line: Cost-effective interventions for reducing crime in Washington.* Unpublished Report. Olympia, WA: Washington State Institute for Public Policy.

Aos, S., Phipps, S., Barnoski, R., & Lieb, R. (2001). *The comparative costs and benefits of programs to reduce crime, v 4.0.* Unpublished Report, Document No. 01-05-1201. Olympia, WA: Washington State Institute for Public Policy.

Arthur, M. W., Hawkins, J. D., Pollard, J., Catalano, R. F. & Baglioni, A. J. (2002). Measuring risk and protective factors for substance use, delinquency, and other adolescent problem behaviors - The communities that care youth survey. *Evaluation Review, 26* (6), 575-601.

Austin, R. L. (1978). Race, father-absence and female delinquency. *Criminology*, *15*, 487-503.

Austin, J. & Krisburg, B. (1981). Wider, stronger and different nets: The dialects of criminal justice reform. *Journal of Research in Crime & Delinquency, 18,* 165-196.

Babbie, E. (1998). *The Practice of Social Research.* 8th ed. Belmont, CA: Wadsworth Publishing Co.

Barnes, G. M. & Welte, J. W. (1986). Patterns and predictors of alcohol use among 7-12th grade students in New York state. *Journal of Studies on Alcohol, 47,* 53-62.

Barnoski, R. ( 2004). *Outcome evaluation of Washington state's research-based programs for juvenile offenders.* Olympia, WA: Washington State Institute for Public Policy.

Barton, C., Alexander, J. F., Waldron, H., Turner, C. W., Warburton, J. (1985). Generalizing treatment effects of functional family therapy: Three replications. *American Journal of Family Therapy, 13,* 16-26.

Beck, A. (2001). *Recidivism: A fruit salad concept in the criminal justice world.* Kansas City, MO: Justice Concepts Incorporated.

Beck, M., Hevener, G., Calhoun, K., Katzenelson, S., and Moore-Gurrera, M., (2007). *Juvenile recidivism study.* Unpublished report. Raleigh, NC: North Carolina Sentencing and Policy Advisory Commission.

Belknap, J., Holsinger, K., & Dunn, M. (1997). Understanding incarcerated girls: The result of a focus group study. *The Prison Journal, 77*, 381-404.

Bishop, D. M. (2005). The role of race and ethnicity in juvenile justice system processing. In D. F. Hawkins and K. Kemps-Lenard (Eds.) *Our children, their children: Confronting racial and ethnic differences in American juvenile justice* (pp. 23-83). University of Chicago Press.

Bohman, M. (1978). Some genetic aspects of alcoholism and criminality. *Archives of General Psychiatry, 35,* 269-276.

Borduin, C. M., Cone, L. T., Mann, B. J., Henggeler, S. W., Fucci, B. R., Blaske, D. M., & Williams, R. A. (1995). Multisystemic treatment of serious juvenile offenders: Long-term prevention of criminality and violence. *Journal of Consulting and Clinical Psychology, 63,* 569-578.

Brown, W., Miller, T., Jenkins, R., & Rhodes, W. (1991). The human costs of "giving the kid another chance". *International Journal of Offender Therapy and Comparative Criminology*, *35* (4), 296-302.

Brundage, J. M. (1984). Predicting recidivism: one court's experience. *Juvenile & Family Court Journal, 35*(3), 15-21.

Bureau of Labor Statistics, U.S. Department of Labor. (2000). *National longitudinal study of youth 1997 cohort, User's guide 2000.* Prepared for the U.S. Department of Labor by Center for Human Resource Research. Columbus, OH: The Ohio State University.

Butts, J. (1996). *Offenders in juvenile court 1994.* Report. Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Butts, J. & DeMuro, P. (1989). *Risk assessment of adjudicated delinquents: Division for children and youth services, Department of Health and Human Services, State of New Hampshire.* Report. Ann Arbor, MI: University of Michigan, Center for the Study of Youth Policy.

Butts, J. A. & Harrell, A. V. (1998). Delinquents or criminals: Policy options for young offenders. *Crime Policy Report.* The Urban Institute. June, 1998, 1-16.

Butts, J., and Snyder, H. (1992). *Restitution and juvenile recidivism.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Cairns, R. B., Cairns, B. D., Neckerman, H. J., Gest, S. D., and Gairepy, J. (1988). Social networks and aggressive behavior: Peer support or peer rejection? *Developmental Psychology, 24,* 815-823.

Calhoun, G., Jurgens, J., & Chen F. (1993). The neophyte female delinquent: a review of the literature. *Adolescence, 28,* 461-471.

Carnegie Council on Adolescent Development (1995). *A matter of time: Risk and opportunity in the nonschool hours.* New York, NY: Carnegie Corporation of New York.

Catalano, R. F. & Hawkins, J. D. (1995). *Risk focused prevention. Using the social development strategy.* Seattle, WA: Developmental Research and Programs, Inc.

Cauffman, E., Piquero, A. R., Kimonis, E., Steinberg, L., Chassin, L., & Fagan, J. (In Press). Legal, individual, and environmental predictors of court disposition in a sample of serious adolescent offenders. *Law and Human Behavior.*

Chesney-Lind, M. & Pasko, L. (2004). *The female offender: Girls, women, and crime.* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Chesney-Lind, M. & Shelden, R. G. (1998). *Girls, delinquency, and juvenile justice.* Belmont, CA: West/Wadsworth.

Compton, B. R. & Galaway, B. (1989). *Social work processes (4th ed).* Belmont, CA: Wadsworth, Inc.

Council on Social Work Education (2007). *Educational policy and accreditation standards.* Online. Retrieved on-line October 26, 2007 from: *http://www.cswe.org.*

Crockett, L. J., Eggebeen, D. J., & Hawkins, A. J. (1993). Father presence and young children's behavioral and cognitive adjustment. *Journal of Family Issues, 14*, 355-377.

Davidson, W. S., Redner, R., Blakely, C. H., Mitchell, C. M., Emshoff, J. G. (1987). Diversion of juvenile offenders: an experimental comparison. *Journal of Consulting and Clinical Psychology, 55,* 68-75.

Demarest, E. J., Reisner, E. R., Anderson, L. M., Humphrey, D. C., Farquhar, E., & Stein, S. E. (1993). *Review of research on achieving the nation's readiness goal.* Washington, DC: U.S. Department of Education.

Dembo, R. & Anderson, A. (2005). Problem-Oriented Screening Instrument for Teenagers. In T. Grisso, G. Vincent, & D. Seagrave (Eds). *Mental health screening and assessment for juvenile justice.* New York, NY: Guilford Press.

Dembo, R., Schmeidler, J., Borden, P., Turner, G., Chin Sue, C., & Manning, D. (1996). Examination of the reliability of the problem oriented screening instrument for teenagers (POSIT) among arrested youths entering a juvenile assessment center. *Substance Use Misuse 31*, 785–824.

Dembo, R., Turner, G., Schmeidler, J., Chin Sue, C., Borden, P., & Manning, D. (1996) Development and evaluation of a classification of high risk youths entering a juvenile assessment center. *Substance Use Misuse. 31,*301–322.

DeMuro, P. & Butts, J. (1989). *At the crossroads: A population profile of youths committed to The Alabama Department of Youth Services.* Unpublished manuscript. Ann Arbor, MI: Center for the Study of Youth Policy, University of Michigan.

Derzon, J. H. & Lipsey, M. W. (2000). The correspondence of family features with problem, aggressive, criminal and violent behavior. Unpublished manuscript. Nashville, TN: Institute for Public Policy Studies, Vanderbilt University.

Dornbusch, S. M., Carlsmith, J. M., Bushwall, S. J., Ritter, P. L., Leiderman, H., Hastorf, H. S., & Gross, R. T. (1985). Single parents, extended households, and the control of adolescents. *Child Development, 56,* 326-341.

Duke, D. & Duke, P. (1978). The prediction of delinquency in girls. *Journal of Research and Development in Education, 11,* 18-33.

Elliot, D. S. (1994). Serious violent offenders: Onset, developmental course, and termination. *Criminology, 32*: 1-21.

Elliott, D. S., Huizinga, D., & Menard, S. (1989). *Multiple problem youth: Delinquency, substance use and mental health problems.* New York, NY: Springer Verlag.

Empey, L. T. (1967). Delinquency theory and recent research. *Journal of Research in Crime and Delinquency, 4* (1), 41.

Empey, L. & Erickson, M. (1972). *The Provo experiment.* Lexington, MA: Lexington Books.

Empey, L. & Lubeck, S. (1971). *The Silverlake experiment.* Chicago, IL: Aldine.

Ezell, M. (1989). Juvenile arbitration: Net-widening and other unintended consequences. *Journal of Research in Crime and Delinquency*, *26*(4), 358-377.

Farrington, D. P. (2000). *Explaining and preventing crime: The globalization of knowledge—* The American Society of Criminology 1999 presidential address. *Criminology, 38*(1), 1-24.

Farrington, D. P. (1991). Childhood aggression and adult violence. In D. Pepler and K. H. Rubin (eds.), *The development and treatment of childhood aggression.* Hillsdale, NJ: Erlbaum.

Farrington, D. P. & West D. J. (1993). Criminal, penal and life histories of chronic offenders: Risk and protective factors and early identification. *Criminal Behavior and Mental Health. 4,* 492-523.

Federal Bureau of Investigation (2002). *Uniform crime reports 2001.* Washington, DC: U.S. Department of Justice, Federal Bureau of Investigation.

Feld, B. C. (1991). Justice by geography: Urban, suburban, and rural variations in juvenile justice administration. *The Journal of Criminal Law and Criminology*, *82*(1). 156-210.

Freivalds, P. (1996). Balanced and restorative justice project (BARJ). *U.S. Office of Juvenile Justice Delinquency & Prevention Fact Sheet #42.* Washington, DC: U.S. Department of Justice, Office of Justice Programs.

Fraser, M. W. (Ed.) (1997). *Risk and resilience in childhood: An ecological perspective.* Washington D.C.: NASW Press.

Fraser, M. W., Hawkins, J.D., & Howard, M.O. (1988). Parent training for delinquency prevention. *Child and Youth Services, 11,* 93-125.

Frazier, C., Bishop, D., & Lanza-Kaduce, L. (1999). Get-tough juvenile justice reforms: The Florida experience. *Annals of the American Academy of Political and Social Science, 564,* 167-184.

Garland, A. F., Hough, R. L., McCabe, K. M., Yeh, M., Wood, P. A., & Aarons, G. A. (2001). Prevalence of psychiatric disorders in youths across five sectors of care. *Journal of the American Academy of Child and Adolescent Psychiatry, 40*, 409–418.

Gensheimer and Associates (1986), Diverting youth from the juvenile justice system: A meta-analysis of intervention efficacy. In S.J. Apter and A. Goldstein (eds.), *Youth violence: programs and prospects*, Elmsford NY: Pergamon.

Geraghty, T. F. & Drizin, S. A. (1997). Foreword: The debate over the future of juvenile courts: Can we reach consensus? *The Journal of Criminal Law and Criminology*, *88* (1), 1-14.

Gottfredson, G. D. (1998). *Issues in adolescent drug use.* Unpublished final report to the U.S. Department of Justice, Johns Hopkins University, Center for Research on Elementary and Middle Schools, Baltimore, MD.

Greenberg, D. F. (1977). The correctional effects of corrections: A survey of evaluations. In D. A. Greenberg (ed.). *Corrections and Punishment,* Beverly Hills, CA: Sage.

Greene, M. (1993). Chronic exposure to violence and poverty: Interventions that work for youth. *Crime and Delinquency, 39* (1), 106-124.

Greenwood, P. (1996). Responding to juvenile crime: Lessons learned. *Future of Children, 6* (3), 75-85.

Gregory, I. (1965). Anterospective data following childhood loss of a parent. *Archives of General Psychiatry, 13,* 99-109.

Grenier, C. & Roundtree, G. (1987). Predicting recidivism among adjudicated delinquents: A model to identify high risk offenders. *Journal of Offender Counseling, Services and Rehabilitation, 12*(1), 101-112.

Grisso, T., Vincent, G. M., & Seagrave, D. [Eds.] (2005). *Mental Health Screening and Assessment for Juvenile Justice.* New York : Guilford Press.

Hall, J. A., Richardson, B., Spears, J., & Rembert, J. K. (1998). Validation of the POSIT: Comparing drug using and abstaining youth. *Journal of Child and Adolescent Substance Abuse, 8,* 29-61.

Hawkins, J. D. (1995). Controlling crime before it happens: Risk-focused prevention. *National Institute of Justice Journal, 3,* 10-17.

Hawkins, J. D., Arthur, M. W. & Catalano, R. F. (1995). Preventing substance abuse. *Crime and Justice, 18.*

Hawkins, J. D. & Catalano, R. F. (1992). *Communities that care.* San Francisco, CA: Jossey-Bass.

Hawkins, J. D., Catalano, R. F. & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychological Bulletin, 112:* 64-105.

Hawkins, J. D., Herrenkohl, T. L., Farrington, D. P., Brewer, D., Catalano, R. F., & Harachi, T. W. (1998). A review of predictors of youth violence. In R. Loeber and D. P. Farrington (eds.). *Serious and Violent Juvenile Offenders: Risk Factors and Successful Interventions* (pp. 106–146)*,* Thousand Oaks, CA: Sage Publications.

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Hawkins, J. D., Laub, J. H. & Lauritsen, J. L. (1998). Race, ethnicity, and serious juvenile offending. In R. Loeber & D. P. Farrington (Eds.), *Serious and violent juvenile offenders: Risk factors and successful interventions* (pp. 30-46). Thousand Oaks, CA: Sage Publications.

Haynie, D. L., & Osgood, D. W. (2005). Reconsidering peers and delinquency: How do peers matter? *Social Forces, 84*(2), 1109-1130.

Henggeler, S. W. (1992). Delinquency. In S. B. Friedman, M. Fisher, & S. K. Schonberg (Eds.), *Comprehensive adolescent health care.* St. Louis: Quality Medical Publishing.

Henggeler, S. W., Melton, G. B., Smith, L. A. (1992). Family preservation using multisystemic therapy: An effective alternative to incarcerating serious juvenile offenders. *Journal of Consulting and Clinical Psychology, 60*, 953-961.

Henggeler, S. W., Melton, G. B., Smith, L. A., Schoenwald, S. K., & Hanley, J. H. (1993). Family preservation using multisystemic treatment: Long-term follow-up to a clinical trial with serious juvenile offenders. *Journal of Child and Family Studies, 2,* 283-293.

Henggeler, S. W., Pickrel, S. G., & Brondino, M. J. (1999). Multisystemic treatment of substance-abusing and dependent delinquents: Outcomes, treatment fidelity, and transportability. *Mental Health Services Research, 1*(3), 171-184.

Henggeler, S. W., Rowland, M. D., Pickrel, S. G., Miller, S. L., Cunningham, P. B., Santos, A. B., Schoenwald, S. K., Randall, J. & Edwards, J. E. (1997). Investigating family-based alternatives to institution-based mental health services for youth: Lessons learned from the pilot study of a randomized field trial. *Journal of Clinical Child Psychology, 26*, 226-233.

Hennessy, M., Richards, P. & Berk, R. (1978). Broken homes and middle class delinquency. *Criminology, 15,* 505-527.

Herrenkohl, T. L., Hawkins, J. D., Chung, I., Hill, K. G., & Battin-Pearson, S. (2001). School and community risk factors and interventions. In *Child delinquents: Development, intervention, and service needs* (pp. 211–246), by R. Loeber and D.P. Farrington (Eds). Thousand Oaks, CA: Sage Publications.

Herrenkohl, T. I., Guo, J., Kosterman, R., Hawkins, J. D., Catalano, R., & Smith, B. (2001) Early adolescent predictors of youth violence as mediators of childhood risks. *Journal of Early Adolescence*, *21*(4), 447-469.

Hinkle, D., Wiersma, W., & Jurs, S. (2003). *Applied Statistics for the Behavioral Sciences.* 5th ed. Houghton Mifflin Co: Boston, MA.

Hosmer, D. W. & Lemeshow, S. (2000). *Applied logistic regression (2nd Ed).* New York, NY: John Wiley & Sons, Inc.

Howell, J. C. (ed.) (1998). *Guide for implementing the comprehensive strategy for serious, violent, and chronic juvenile offenders.* (2nd ed.). Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Howell, J. C. (1995). Social development strategy. In *Guide for implementing the comprehensive strategy for serious, violent, and chronic juvenile offenders.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention. 23-24.

Huizinga, D., Esbensen, F. A., Weiher, A. W. (1991). Are there multiple paths to delinquency. *Journal of Criminal Law & Criminology, 82* (1), 83-118.

Huizinga, D., Loeber, R., & Thornberry, T., P. (1994). *Urban delinquency and substance abuse: Initial findings.* Washington, DC: U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention.

Huizinga, D., Loeber, R., Thornberry, T. & Cothern, L. (2000). *Co-occurrence of delinquency and other problem behavior.* Bulletin. Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Huizinga, D., Schumann, K., Ehret, B., & Elliot, A. (2003). *The effect of juvenile justice system processing on subsequent delinquent and criminal behavior: A cross-nation study.* Unpublished report. Washington, DC: U.S. Department of Justice. Office of Justice Programs, National Institute of Justice.

Huizinga, D., Thornberry, T., Knight, K., Lovegrove, P. (2007). *Disproportionate minority contact in the juvenile justice system: A study of differential minority arrest/referral to court in three cities.* Unpublished report. Washington, DC: U.S. Department of Justice. Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Hurst, H. & McHardy, L. (1991). Juvenile justice and the blind lady. *Federal Probation, 55* (2), 63-68.

Johnson, R. E. (1989). Family structure and delinquency: General patterns and gender differences. *Criminology,* 24 (1).

Juvenile Justice and Delinquency Prevention Act (1974). Act of 1974 (Pub. L. 93-415, 42 U.S.C. 5601 *et seq.)* as amended (2003). Washington, DC: U. S. Government Printing Office.

Kandel, D. B. & Andrews, K. (1987). Processes of adolescent socialization by parents and peers. *International Journal of the Addictions, 22,* 319-342.

Kazdin, A. E., Kraemer, H. C., Kessler, R. C., Kupfer, D. J., & Offord, D. R. (1997). Contributions of risk factor research to developmental psychopathology. *Clinical Psychology Review, 17*, 375–406.

Klein, N. C., Alexander, J. F., & Parsons, B. V. (1977). Impact of family systems intervention on recidivism and sibling delinquency: A model of primary prevention and program evaluation. *Journal of Consulting and Clinical Psychology, 45,* 469-474.

Knight, J. R., Goodman, E., Pulerwitz, T., & DuRant, R. H. (2001). Reliability of the POSIT in adolescent medial practice. *Journal of Adolescent Health, 29,* 125-130.

Krisberg, B., Austin, J., & Steele, P. (1989). Unlocking juvenile corrections. San Francisco, CA: National Council on Crime and Delinquency.

Leccese, M., & Waldron, H. B. (1994). Assessing adolescent substance abuse: A critique of current measurement instruments. *Journal of Substance Abuse Treatment*, *11*, 553-563.

Lee, M. R., & Bartkowski, J. P. (2004). Love thy neighbor? Moral communities, civic engagement, and juvenile homicide in non-metro communities. *Social Forces, 82*, 1001-1035.

LeFlore, L. (1988). Delinquent youths and family. *Adolescence, 23*(91), 629-642.

Lenth, R. V. (2006). Java applets for power and sample size [Computer software]. Retrieved October 7, 2007, from http://www.stat.uiowa.edu/~rlenth/Power.

Lipsey, M. W. (1992). Juvenile delinquency treatment: A meta-analytic inquiry into the variability of effects. . In T. D. Cook, H. Cooper, D. S. Cordray, H. Hartmen, L. Hedges, R. Light, T. Louis, & F. Mosteller (Eds.), *Meta-analysis for* explanation (pp. 83-126). New York: Russell Sage Foundation.

Lipsey, M. W. (1995). What do we learn from 400 research studies on the effectiveness of treatment with juvenile delinquents? In McGuire, J (ed.). *What works: Reducing offending - Guidelines for research and practice* (pp. 63-78). New York: John Wiley & Sons Ltd.

Lipsey, M. W. (1999). Can intervention rehabilitate serious delinquents? *Annals of the American Academy of Political and Social Science, 564,* 142-166.

Lipsey, M. W. & Derzon, J. H. (1998). Predictors of violent or serious delinquency in adolescence and early adulthood: A synthesis of longitudinal research. In R. Loeber & D. P. Farrington (Eds.). *Serious and violent juvenile offenders: Risk factors and successful interventions* (pp. 86-105). Thousand Oaks, CA: Sage Publications.

Lipsey, M. W. & Wilson D. B. (1997). Effective intervention for serious juvenile offenders: A synthesis of research. In R. Loeber & D. P. Farrington (Eds.). *Serious and violent juvenile offenders: Risk factors and successful interventions* (pp. 313-345). Thousand Oaks, CA: Sage Publications.

Lipton, D., Martinson, R., & Wilks, J. (1975). *The effectiveness of correctional treatment: A survey of treatment evaluation studies.* New York: Praeger.

Loeber, R., & Farrington, D. P. (eds) (1998). *Serious and violent juvenile offenders: Risk factors and successful interventions.* Thousand Oaks, CA: Sage Publications.

Loeber, R., Farrington, D. P., & Petechuk, D. (2003). Child delinquency: Early intervention and prevention. *Child Delinquency.* Washington, DC: U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention, 1-18.

Loeber, R., Stouthamer-Loeber, M., Van Kammen, W. B., & Farrington, D. P. (1991). Initiation, escalation and desistance in juvenile offending and their correlates. *Journal of Criminal Law and Criminology*, *82,* 36-82.

Louisiana Office of Youth Development (2004). *House bill no. 1.* Louisiana regular legislative session. Baton Rouge, LA.

Louisiana Office of Youth Development (2007). *Profile of recidivism in office of youth development.* Online. Available: http://www.oyd.louisiana.gov/statistics-05-oyd/1f.pdf. Released on January 4, 2007.

Louisiana Office of Youth Development (2000). *Multi-year profile of discharge cohort Recidivism.* Online. Available: http://www.oyd.la.gov

Luchansky, W., Lijian, H., Longhi, D., Krupski, A., & Stark, K. D. (2006). Treatment readmissions and criminal recidivism in youth following participation in chemical dependency treatment. *Journal of Addictive Diseases, 25* (1), 87-94.

Lundman, R. J., McFarlane, P. T. & Scarpitti, F. R. (1976). Delinquency prevention: A description and assessment of projects reported in the professional literature. *Crime & Delinquency, 22,* 297-308.

MacDonald, J. M. & Chesney-Lind, M. (2001). Gender bias and juvenile justice revisited: A multiyear analysis. *Crime & Delinquency, 47* (2), 173-195.

Martin, S. E., Sechrest L. B., & Redner R. (1981). *New directions in the rehabilitation of criminal offenders.* Washington, DC: National Academy Press.

Matsueda, R. & Heimer, K. (1987). Race, family structure, and delinquency: a test of differential association and social control theories*, American Sociological Review,52,* 826-840.

McCabe, K. M., Lansing, A. E., Garland, A., & Hough, R. (2002). Gender differences in psychopathology, functional impairment, and familial risk factors among adjudicated delinquents. *Journal of the American Academy of Child and Adolescent Psychiatry, 41*, 860–867.

McCord, J. (1979). Some child-rearing antecedents of criminal behavior in adult men. *Journal of Personality and Social Psychology, 37*(9), 1477-1486.

McCord, J., Widom, C. S., & Crowell, N. A. (eds.) (2001). *Juvenile crime, juvenile justice. Panel on juvenile crime: Prevention, treatment, and control.* Washington, DC: National Academy Press.

McGough, L. S. & Triche, K. (2005). *Louisiana Children's Code Handbook.* Eagan, MN: Thomson West.

Mears, D. P. & Kelly, W. R. (2002). Linking process outcomes in evaluating a statewide drug treatment program for youthful offenders. *Crime & Delinquency, 48* (1), 99-115.

Melton, G. B., Limber, S. P., Cunningham, P., Osgood, W., Chambers, J., Flerx, V., Henggeler, S., and Nation, M. (1998). Violence among rural youth: Final report to the Office of Juvenile Justice and Delinquency Prevention. Unpublished report. Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Mitchell, D. & Wilson, W. (1967). Relationship of father absence to masculinity and popularity of delinquent boys. *Psychological Reports, 20,* 1173-1174.

Moffitt, T. (1993). Adolescent-limited and life-course-persistent antisocial behavior: A developmental taxonomy. *Psychological Review, 100*, 674-701.

Moffitt, T., Lynam, D. R. & Silva, P. A. (1994). Neuropsychological tests predicting persistent male delinquency. *Criminology, 32* (2), 277-300.

Morgan, S. E., Reichert, T. & Harrison, T. R. (2002). *From numbers to words: Reporting statistical results for the social sciences.* Boston, MA: Allyn and Bacon.

Mrazek, P. J. & Haggerty, R. J. eds. (1994). *Reducing risks for mental disorders: Frontiers for preventative intervention research.* Washington, DC: National Academy Press.

Mulvey, E. P., Arthur, M. W., & Reppucci, N. D. (1992). The prevention and treatment of juvenile delinquency: A review of the research. *Juvenile Delinquency, 13,* 133-167.

Murray, C. A. (1983). The physical environment and community control of crime. In J. Q. Wilson (ed.), *Crime and Public Policy* (pp. 107-122). San Francisco, Calif. : ICS Press.

Myers, W. C., Burton, P., Sanders, P. D., Donat, K. M., Cheney, J., Fitzpatrick, T. M., & Monaco, L. (2000). Project back-on-track at 1 year: A delinquency treatment program for early-career juvenile offenders. *Journal of the American Academy of Child & Adolescent Psychiatry. 39* (9), 1127-1134.

National Criminal Justice Reference Service (2007). *Search questions and answers: What is the national juvenile recidivism rate.* Online. Available: http://www.ncjrs.gov/App/QA/Detail.aspx?Id=113&context=9 . Updated on June 15, 2007.

National Research Council and Institute of Medicine (2001). *Juvenile crime, juvenile justice.* Panel on Juvenile Crime: Prevention Treatment, and Control. McCord, J., Wisdom, C., Crowell, N. eds. Committee on Law and Justice and Board on Children, Youth and Families. Washington, DC: National Academy Press.

Niarhos, F. J., & Routh, D. K. (1992). The role of clinical assessment in the juvenile court: Predictors of juvenile disposition and recidivism. *Journal of Clinical Child Psychology, 21* (2), 151-159.

Nugent, L. (1991). A model juvenile justice program. *Individual Psychology Journal of Adlerian Theory, Research and Practice, 47* (2), 189-198.

Nunnally, J. C. (1994). *Psychometric theory.* New York, NY: McGraw-Hill.

Office of Juvenile Justice Delinquency Prevention (1998) *Report to congress: Juvenile violence research.* Washington, DC: U.S. Department of Justice Printing Office.

Office of Juvenile Justice Delinquency Prevention (1999) *Report to congress*: *Juvenile violence research.* Washington, DC: U.S. Department of Justice report number NCJ 176976

Office of Juvenile Justice Delinquency Prevention (2007a). *Statistical briefing book.* Online. Available: http://ojjdp.ncjrs.gov/ojstatbb/court/qa06204.asp?qaDate=2004. Released on March 19, 2007.

Office of Juvenile Justice Delinquency Prevention (2007b). *Statistical briefing book.* Online. Available: http://ojjdp.ncjrs.gov/ojstatbb/court/qa06205.asp?qaDate=2004. Released on March 19, 2007.

Office of Juvenile Justice Delinquency Prevention (2007c). *Statistical briefing book.* Online. Available: http://ojjdp.ncjrs.gov/ojstatbb/court/qa06401.asp?qaDate=2004. Released on March 19, 2007.

Offord, D., Avrams, N., Allen, N., & Paushinsky, M. (1979). Broken homes, parental psychiatric illness and female delinquency. *American Journal of Orthopsychiatry, 15,* 252-264.

Osgood, D. W., & Chambers, J. M. (2000). Social disorganization outside the metropolis: An analysis of rural youth violence. *Criminology,* 38(1), 81-115.

Palmer, T. (1971). California's community treatment program for delinquent adolescents. *Journal of Research on Crime and Delinquency, 8,* 74-82.

Patterson, G. R. & Dishion, T. J. (1985). Contributions of families and peers to delinquency. *Criminology, 23,* 63-77.

Peterson, P. L., Hawkins, J. D., Abbott, R. D., Catalano, R. F. (1994). Disentangling the effects of parental drinking, family management, and parental alcohol norms on current drinking by black and white adolescents. *Journal of Research on Adolescents, 4* (2), 203-227.

Poe-Yamagata, E. & Butts, J. A. (1996). *Female offenders in the juvenile justice system.* Washington, DC: U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention.

Poe-Yamagata, E. & Jones, M. A. (2000). *And justice for some.* Davis, CA: National Council on Crime and Delinquency, 1-33

Pope, C. E. & Snyder, H. N. (2003). *Race as factor in juvenile arrests.* Washington, DC: Office of Juvenile Justice and Delinquency Prevention.

Potocky-Tripodi, M. & Tripodi, T. (1999). *New directions for social work practice research.* (eds.). Washington, DC: NASW Press.

Rahdert, E. R, (1991). *The adolescent assessment and referral manual.* (DHHS Publication ADM-91-1735). Rockville, MD: National Institute on Drug Abuse.

Regoli, R., Wilderman, E. & Pogrebin, M. (1985). Using an alternative evaluation measure for assessing juvenile diversion programs. *Children and Youth Services Review, 7,* 21-38.

Reker, G., Cote, J. & Peacock, E. (1980). Juvenile diversion: Conceptual issues and program effectiveness. *Canadian Journal of Criminology, 22* (1), 36-50.

Robertson, A. A., Grimes, P. W., & Rogers, K. E. (2001). A short-run cost-benefit analysis of community-based interventions for juvenile offenders. *Crime & Delinquency, 47* (2), 265-284.

Robins, L. N. & Pryzbeck, T. R. (1985). Age of onset of drug use as a factor in drug and other disorders. *National Institute of Drug Abuse Research Monograph Series,* No. 56.

Rodriguez, N. (2007). Restorative justice at work: Examining the impact of restorative justice resolutions on juvenile recidivism. *Crime & Delinquency, 53*(3), 355-379.

Romig, D. (1978). *Justice for our children.* Lexington, MA: Lexington Books.

Rosen, L. (1985). Family and delinquency: Structure or function? *Criminology*, *23*, 553-573.

Rubin, A. & Babbie, E. (1993). *Research methods for social work (2<sup>nd</sup> ed.).* Pacific Grove, CA: Brooks/Cole Publishing Co.

Rutter, M. (1987). Temperament, personality and personality disorder. *British Journal of Psychiatry, 150,* 443-458.

Rutter, M. & Garmezy, N. (1983). *Stress, coping, and development in children.* New York, NY: McGraw-Hill.

Rutter, M. & Giller, H. (1983). *Juvenile delinquency: Trends and perspectives.* New York, NY: Penguin.

Schneider, A. L. (1986). Restitution and recidivism rates of juvenile offenders: Results from four experimental studies. *Criminology, 24* (3), 533-552.

Sechrest, L., White, S. 0. & Brown, E. D. (1979). *The rehabilitation of criminal offenders: Problems and prospects.* Washington, DC: National Academy of Sciences.

Sedlak, A. J. & Broadhurst, D. D. (1996). *Executive summary of the third national incidence study of child abuse and neglect.* Washington, DC: U.S. Department of Health and Human Services, Administration for Children and Families, 2.

Seguin, J. R., Pihl, R. O., Harden, P. W., Tremblay, R. E., & Boulerice, B. (1995). Cognitive and neurophyschological characteristics of physically aggressive boys. *Journal of Abnormal Psychology, 104* (4), 614-624.

Seigal, L. & Senna, J. (1991). *Juvenile delinquency: theory, practice and law.* St. Paul, MN: West Publishing.

Sexton, T. L. & Alexander, J. F. (2000). Functional family therapy. *Juvenile Justice Bulletin,* Washington, DC: U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention. 1-7.

Shader, M. (2003). *Risk factors for delinquency: An overview.* Washington, D.C.: U.S. Department of Justice, Office of Juvenile Justice Delinquency Prevention.

Sharp, P. M. & Hancock, B. W. (eds) (1995). *Juvenile delinquency: Historical, theoretical, and societal reactions to youth.* Englewood Cliffs, NJ: Prentice Hall.

Sickmund, M. (2004). *Juveniles in corrections. Juvenile offenders and victims national report series.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Siegel, L. (2004). *Criminology: Theories, patterns, and Typologies.* Belmont, CA: Wadsworth/Thomson Learning.

Smith, D. & Paternoster, R. (1991). Formal processing and future delinquency: Deviance amplification as selection artifact, *Law and Society Review, 24,* 1109-1131.

Snyder, H. (1997). *Juvenile arrests 1995.* Bulletin. Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Snyder, H. (1988). *Court careers of juvenile offenders.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Snyder, H. N. (2001). Epidemiology of official offending. In R. Loeber & D. P. Farrington (Eds.), *Child delinquents: Development, intervention, and service needs* (pp. 25-46). Thousand Oaks, CA: Sage Publications.

Snyder H. N. (2002). *Juvenile arrests 2002.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Snyder, H. & Sickmund, M. (1999). *Juvenile offenders and victims: 1999 national report.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Snyder, H. & Sickmund, M. (2006). *Juvenile Offenders and victims: 2006 national report.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

SPSS Inc. (2006). *SPSS Complex Samples 15.0.* Chicago IL: SPSS Inc.

Stahl, A., Puzzanchera, C., Sladky, A., Finnegan, T., Tierney, N., & Snyder, H. (2005). *Juvenile court statistics 2001-2002.* Pittsburgh, PA: National Center for Juvenile Justice.

Steinberg, L. (1987). Single parents, stepparents, and the susceptibility of adolescents to antisocial peer pressure. *Child Development, 58,* 269-275.

Tabachnick, B. G. & Fidell, L. S. (2001). *Using multivariate statistics (4ᵗʰ ed.).* Boston, MA: Allyn and Bacon.

Texas Youth Commission (1997). *National Recidivism Method Study.* Austin, TX: Texas Youth Commission.

Thornberry, T. P. (1994). Violent families and youth violence. *Fact Sheet #21.* Washington, DC: U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention.

Thornberry, T. P., & Krohn, M. D. (2003). *Taking stock of delinquency: An overview of findings from contemporary longitudinal studies.* New York, NY: Kluwer/Plenum Publishers.

Thornberry, T. P., Smith, C. A., & Ehrhard, M. A. (2004). Teenage fatherhood and involvement in delinquent behavior. *The Prevention Researcher. 11*(4), 10-13.

Thornberry, T. P., Huizinga, D., & Loeber, R. (2004) The causes and correlates studies: Findings and policy implications. *Juvenile Justice, 9*(1), 3-16.

Trupin, E. (2006). Investigations and litigation in juvenile justice. *Focal Point: Research, Policy, and Practice in Children's Mental Health, 20* (2), 10-12.

U.S. Census Bureau (2007). *2000 U. S. Census Data.* Retrieved October 1, 2007, from ftp://ftp2.census.gov/census_2000/datasets/.

U.S. Department of Justice (2004). *Crime in the United States 2003.* Washington, DC: U.S. Government Printing Office.

VanVleet, R. (1999). The attack on juvenile justice. *Annals of the American Academy of Political and Social Science, 564,* 203-214.

VanVleet, R. & Butts, J. (1990). *Risk assessment of committed delinquents; Nebraska youth development center.* Ann Arbor, MI: Center for the Study of Youth Policy, University of Michigan.

Virginia Department of Juvenile Justice (2005). Juvenile recidivism in Virginia. *DJJ Research Quarterly.* Richmond, VA: VDJJ.

Virkkunen, M. (1976). Parental deprivation and recidivism in juvenile delinquents. *British Journal of Criminology, 16,* 378-384.

Washington State Institute for Public Policy. (1997). *Fast tracking youth to diversion in Thurston County: A preliminary analysis.* Olympia, WA: Washington State Institute for Public Policy.

Wasserman, G. A. & Seracini, A. G. (2001). Family risk factors and interventions. In R. Loeber and D.P. Farrington (eds). *Child delinquents: Development, intervention, and service needs* (pp. 165-189). Thousand Oaks, CA: Sage Publications.

Wells, L.E., & Rankin, J.H. (1991). Families and delinquency: A meta-analysis of the impact of broken homes. *Social Problems, 38* (1), 71-83.

Werner, E. & Smith, R. (1992). Overcoming the odds: High-risk children from birth to adulthood. New York, NY: Cornell University Press.

Werner, E. & Smith, R. (1982). *Vulnerable but invincible.* New York, NY: McGraw-Hill.

West, D. J. & Farrington, D. P. (1973). *Who becomes delinquent?* London, England: Heinermann.

Whitehead, J. T. & Lab, S. P. (1989). A meta-analysis of juvenile correctional treatment, *Journal of Research in Crime and Delinquency, 26,* 276-95.

Wilson, J. Q. & Hernstein, R. J. (1985). *Crime and human nature.* New York, NY: Simon and Schuster.

Wilson, J. J. & Howell, J. C. (1993). *Comprehensive strategy for serious, violent, and chronic juvenile offenders.* Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

Wilson, S. J., Lipsey, M. W., & Soydan, H. (2003). Are mainstream programs for juvenile delinquency less effective with minority youth than majority youth? A meta-analysis of outcomes research. *Research on Social Work Practice, 13*(1), 3-26.

Wright, W. E. & Dixon, M. C. (1977). Community prevention and treatment of juvenile delinquency: A review of evaluation studies. *Journal of Research in Crime and Delinquency, 14*, 35-67.

Youth Service Bureau (2000). *Annual report.* St. Tammany Parish, LA: United Way.

Youth Service Bureau (2000) *Crossroads pamphlet.* Youth Service Bureau of St. Tammany & Washington Parish, LA.

Youth Service Bureau (2001) *YSB Staff Manual.* Youth Service Bureau of St. Tammany & Washington Parish, LA.

Zastrow, C. & Kirst-Ashman, K. (1990). *Understanding human behavior and the social environment (2nd ed.).* Chicago, IL: Nelson-Hall Publishers.

Zimring, F. (2000). The common thread: Diversion in juvenile justice. *California Law Review, 88,* 2477.

## VITA

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