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Managing risks in juvenile justice

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Managing risks in juvenile justice

by

David John Huff

A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Sociology
Major Professor: Robert F. Meier

Iowa State University
Ames, Iowa
1998

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ABSTRACT

The determination of risk assessment is an important technique of the "new penology" in its search for more efficient and effective ways to handle offenders. The current study examines the validity of a risk assessment instrument and its ability to predict recidivism among a sample of 133 male and female juvenile offenders in one of Iowa's eight judicial districts. The study instrument, a risk assessment tool utilized by juvenile court officers at the dispositional stage of juvenile court case processing, was adapted from another risk assessment scale designed for use at the intake stage of juvenile court case processing. The results indicate that the study instrument is statistically valid and provides a 34.2 percent improvement over chance in the prediction of recidivism. This finding contradicts previous research that cautioned against using an instrument that was validated at one stage of juvenile court case processing at another stage. In addition, it was found that leaving the variable "sex" in the risk assessment model and making adjustments in the risk categories for females, resulted in higher mean cost rating scores than when treating females the same as males or when scoring males as if they were females.

Results from a path analysis indicated that the number of re-referrals to juvenile court was predicted directly by the completion of sanctions and the length of non-recidivism, but there was no direct association found between the risk assessment score and the number of re-referrals to juvenile court. There was also no relationship found between the juvenile court ordered disposition and the number of re-referrals. The reduced models for males and females showed that there were both similarities and differences by sex in the prediction of recidivism. The primary difference by sex that was found was that the juvenile court officer's recommendations and the juvenile court ordered disposition had no association with the number of re-referrals for females, while an indirect association was found to exist or males. In other words, the intrusiveness of the disposition had some impact on male offenders in terms of re-referral, while other factors such as the completion
of sanctions and the length of non-recidivism predicted the number of re-referrals for females.
CHAPTER ONE: INTRODUCTION

Traditionally the focus of the juvenile justice system has been upon the rehabilitation of offenders. The guiding principle was to do what was in the best interest of the offending youth and the primary objectives were to provide “treatment” and reintegrate them into society. As juvenile crime rates began to rise in the 1980s, the media, general public, researchers and politicians began to call for changes in how the system dealt with juvenile offenders. During the late 1980s and early 1990s, it became evident that the primary focus of the juvenile justice system had shifted from rehabilitation to a desire to control juvenile offending and hold juveniles accountable for their offenses.

Increases in Juvenile Arrest Rates

While arrest and incarceration rates have been increasing over the course of this century, the rates for juveniles arrested for violent offenses and to a lesser extent property offenses began to increase at a much faster pace since the mid 1980s. Although relatively stable in the 1970s and early 1980s, the arrest rates for violent offenses increased 67 percent, from 300 per 100,000 in 1985 to over 500 per 100,000 in 1995 for youths ages 10 to 17 (Sickmund et al., 1997). Some researchers have estimated that if these trends continue, the number of juvenile arrests for violent crime will double by the year 2010 (Snyder, Sickmund, Poe-Yamagata, 1996).

Although the number of arrests for serious and violent crimes has increased in recent years, the data also reveal that juveniles are not responsible for most violent crimes. In 1994 juveniles accounted for just 19 percent of all violent crime arrests (Torbet et al., 1996). This means that slightly fewer than one-fifth of all persons who entered the justice system on a violent crime charge were juveniles. Moreover, fewer than one-half of 1 percent of juveniles in the United States were arrested for a violent offense in 1994. That represents fewer than 1 in 200 juveniles,
yet these juveniles are driving national juvenile justice policy concerns. While violence committed by juveniles is on the increase, adults were responsible for 74 percent of the increase in violent crimes from 1985 to 1994 (Snyder, Sickmund, and Poe-Yamagata, 1996).

**Juvenile Court Case Handling**

As a direct result of increases in juvenile arrest rates, juvenile courts began handling a growing number of violent cases. Juvenile court caseloads have risen significantly during the 1980's and early 1990's and have grown more violent. In 1994, U.S. Courts with juvenile jurisdiction handled an estimated 1,555,200 cases in which the juvenile was charged with a delinquency offense, an offense for which an adult could be prosecuted in criminal court (Butts et al., 1994). This was a 41 percent increase over the number of cases handled in 1985.

**Incarceration**

Along with arrest rates and juvenile court case loads, the rate of incarcerations has been increasing as well. Every year the U.S. Census Bureau at the request of the Office of Juvenile Justice Delinquency Prevention (OJJDP) conducts a one day census of private and public juvenile facilities across the nation. The one-day count (census) of juveniles held in public facilities rose 47 percent from 1983 to 1995 (Sickmund et al., 1997). Juveniles held for crimes against persons were a greater proportion of the public facility custody population in 1995 than in 1983. The increase in the proportion of juveniles held for crimes against persons was offset by a decrease in the proportion held for property crimes. Juveniles held for violent crime index offenses were a greater share of the public facility population in 1995 (25 percent) than in 1983 (19 percent). The same was true for crimes against persons overall in 1995 (40 percent) compared to 1983 (28 percent). The proportion of juveniles held for drug offenses rose from 6 percent in 1983 to 14 percent in 1991 and then dropped to 9 percent in 1995 (Sickmund et al., 1997).
The problems of overcrowding were more dramatic in some places than others. California, Ohio, and Texas together held nearly 40 percent of juveniles in public custody facilities (OJJDP, 1996a). Crowding in juvenile custody facilities affect a substantial proportion of juveniles in custody. Many more juveniles were held in crowded secure public facilities in 1995 than in 1991. In addition, the number of youth under 18 in jails increased 20 percent from 1994 to 1996 (OJJDP, 1996a).

Responses

In response to increases in arrests for juveniles, states and local jurisdictions began responding by (1) transferring more juveniles to the criminal court and (2) experimenting with disposition and sentencing options in both the juvenile and criminal justice systems. From 1992 through 1995, legislatures in 47 states and the District of Columbia enacted laws that “toughened” their juvenile justice system (Torbet et al., 1996). The changes can be seen in a number of primary areas (e.g., jurisdictional authority, confidentiality laws, disposition and sentencing, correctional programming for juveniles who commit violent or other serious offenses).

Jurisdictional Authority

Two major changes have occurred in regards to jurisdictional authority in recent years, waiver provisions and extension of juvenile court jurisdiction beyond 18 years of age. A national study by Snyder, Sickmund and Yamagata (1997), showed that all of the states offered some type of transfer mechanism in which juveniles can be transferred to criminal court if they were deemed inappropriate for juvenile court processing (i.e., judicial waiver, prosecutor discretion, legislative exclusion). As of year end 1996 only 10 states relied on just one mechanism for transferring youths to criminal court. Five states had three mechanisms and the remainder had two of the mechanisms.

Along with the changes in the transfer mechanisms, the use of judicial waiver has changed dramatically over the past decade. The number of cases judicially
waived nationwide increased 71 percent from 1985 through 1994 (Sickmund et al., 1997). In 1994 as in 1985, the vast majority of waived cases involved youth age 16 or older; however, the proportion of younger juveniles (under 16) increased from 6 percent in 1985 to 12 percent in 1994 (Sickmund et al., 1997). This was probably a by-product of new laws that lowered the minimum waiver age or excluded older juveniles charged with certain crimes from juvenile court altogether.

From 1992 through 1995, statutes requiring mandatory minimum periods of incarceration for certain violent or serious offenders were added or modified in 16 States. States have also raised the maximum age of the juvenile court's continuing jurisdiction over juvenile offenders. Such laws allow juvenile courts to order dispositions that extend beyond the upper age of original jurisdiction, most often to age 21. From 1992 through 1995, 12 states extended their dispositional age limit (Sickmund et al., 1997).

Confidentiality Laws

Juvenile court proceedings and records were traditionally kept private and confidentiality was very strict. But in recent years the juvenile court proceedings and records have become more open as provisions have been implemented that reduced confidentiality restrictions. Between 1985 and 1995 legislatures made significant changes in how information about juvenile offenders is treated by the justice system, often in tandem with changes in jurisdictional authority. At year end 1995, 22 states had open hearings for certain cases (10 were new or modified laws). Thirty-nine states permitted the release of certain juveniles’ names and or photographs (11 were new or modified laws). Eighteen states prohibited the sealing or expunging of certain juvenile court records (8 were new or modified laws). Forty-five states allowed the release of juvenile court records to certain types of people: prosecution, law enforcement, social agencies, schools, the victim, or the public (21 were new or modified laws).
**Dispositions or Sentences**

Recent changes in state and local laws have had a dramatic impact on sentencing for serious or violent juvenile offenders. Juvenile court dispositions were traditionally based on the offender’s individual characteristics and situation. Dispositions were often intermediate and generally had rehabilitation as a primary goal. As many states have shifted the purpose of the juvenile court away from rehabilitation and toward punishment, accountability, and public safety, the emerging trend is one of dispositions based more on the offense. Offense-based dispositions tend to be determinate and proportional to the offense, and retribution and deterrence have replaced rehabilitation as primary goals (Torbet et al., 1996).

From 1992 through 1995, statutes requiring mandatory minimum periods of incarceration for certain violent or serious offenders were added or modified in 16 States (Sickmund et al., 1997). As previously mentioned, states have also raised the maximum age of the juvenile court’s continuing jurisdiction over juvenile offenders. Perhaps the most dramatic change in sentencing was in the development of “blended sentences” that combined juvenile and adult sentences. Blended sentencing statutes allowed courts to impose both juvenile and adult correctional sanctions on certain young offenders. Sixteen states had blended sentencing by the end of 1995 (Sickmund et al, 1997).

**Correctional Programming**

The justice system has shifted its emphasis from rehabilitation to holding juveniles accountable for the seriousness of their offenses. While some States have incorporated that position into a balanced approach that includes protecting the public, restoring community, and enhancing the offender’s competencies, many others have moved to a clear-cut punishment theme (Torbet et al., 1996). In keeping with either of those themes, states are incarcerating more juvenile offenders for longer periods and redefining more of them as adults.

Responses to increases in arrests and incarcerations of juveniles have been
felt in both the juvenile and criminal justice systems. “New” programs have been
developed and implemented including intensive probation, electronic monitoring, day
treatment, private residential and nonresidential programs, and specialized
programs for sex offenders and other violent offenders (Howell, 1995). In addition,
new programs referred to as youthful offender programs have been designed
specifically for offenders between the ages of 16 and 21 as alternatives to
incarceration or in response to non-compliant probationer behaviors (Huff and Hudik,
1997).

**Toward a New Penology**

A new penology that focuses on the management of groups or sub-groups of
offenders has emerged that has challenged the traditional penal ideology based on
rehabilitating individuals (Feeley and Simon, 1992 and 1995; Simon and Feeley,
1995). The principle consideration of this new penology has shifted from the best
interests of an offender to the best interests of society. This new penology seeks to
regulate deviance, not to intervene or respond to individual deviants, and its effects
are seen in three distinct areas: (1) its objectives, (2) its discourses, and (3) its
techniques.

The major focus in penology has changed from the punishment or
rehabilitation of individuals to a system of rationality and accountability in regards to
the managerial process (Gottfredson et al., 1994; Gottfredson and Gottfredson,
1988, 1997a; Gottfredson and Uihlein, 1992). In other words, the primary goal for
the new penology has changed from the removal of crime to the management of
offenders and levels of crime in regards to tolerable levels of crime through systemic
coordination. Recognizing that crime cannot be eliminated, the new penology seeks
to control and contain.

To fit the new objectives, a new language within penology has begun
replacing the moral or clinical description of correctional efforts directed toward the
individual with an actuarial language of probabilistic calculations and statistical
distributions applied to groups. Words such as “reformation” and “treatment” are
increasingly being replaced by terms such as "risk" and "management." The referents to these terms have shifted from individual criminals to groups of offenders, such as chronic or habitual offenders and the new feared criminal, the "super predator." Discourses have also begun to include such terms as "rationality" and "accountability" to refer to criminal justice agencies that are responsible for the management of offenders.

As new discourses and objectives emerged in penology so did new techniques. Risk assessment scales have become an important tool in the new penology to identify, classify and manage groups of offenders by their risk of violence or chronicity. Between 1990 and 1993, the National Council on Crime and Delinquency (NCCD) alone worked with 20 to 25 states and local jurisdictions to develop, implement, or revise risk assessment and classification systems. In 1995, OJJDP released a guide for implementing the comprehensive strategy for serious, violent and chronic juvenile offenders (Howell, 1995). This guide was distributed to practitioners, policy makers, and scholars throughout the country in an effort to describe and highlight the rationale, goals, and uses of risk assessment and classification tools.

Further evidence of the increased popularity and importance of risk assessment tools was found at the 7th annual workshop for contributors to the National Juvenile Court Data Archive in Santa Fe, New Mexico held in the Summer of 1997. Two of the major focuses of this workshop were assessment instruments and rational decision making models. Representatives from 40 of the 50 states participated in the workshop and worked together as a group to develop a risk assessment handbook which was to be edited and distributed to all of the states by the National Center for Juvenile Justice (NCJJ).

Statement of the Problem

Most criminal and juvenile justice case processing decisions are based on either the desire to maintain uniformity or individuality (Ohlin and Remington, 1993). Virtually all such decisions are also based on predictions of future conduct.
Decisions to arrest, charge, prosecute, convict, and sentence involve a number of strictly legal considerations (e.g., seriousness of the crime, evidence sufficiency) as well as assumptions of the likelihood that a given person will commit a crime again. Like many other decision makers, criminal justice practitioners operate under conditions of imperfect knowledge about particular cases, the more general category in which the particular cases may be a part, and the relative importance of various factors that might predict future behavior.

A major confounding factor in making such decisions is the lack of homogeneity among offenses, offenders, and interventions. Just as there are many different legal offense categories, there are many different kinds of offenders, crime situations, and contextual factors that influence the commission of crime. Crime is not a homogeneous collection of behavior or persons. In response to this problem, typologies of offenders and interventions have been created in the hope of connecting them with some theoretically defensible set of criteria (Gibbons, 1965).

There has been much work done in this regard, but no typology to date has proven valid and none address the major philosophical and practical problems facing penology in the 1990s. Most criminal justice systems in the United States are overworked and have inadequate resources. Some typologies have had to abandon the rehabilitative ideal as impossible. No wonder the new penology has been attractive — and believed necessary. Observers have begun pointing out the increasing bureaucratic nature of criminal justice. Some have likened criminal justice decision making to work on an assembly line where criminal justice officials, faced with inadequate resources to do increasing amounts of work (decisions) must rely on crude categorizations of “types” of offenders (Packer, 1968). Studies of criminal justice decision making appear to be increasingly documenting the importance of group characteristics of offenders, not case-specific information, in making justice decisions (Ohlin and Remington, 1993).

The overall purpose of this research was to evaluate or examine a risk assessment device in regards to its predictability and its ability to aid juvenile justice officials in making disposition recommendations to the juvenile court. This research
examined the total number of dispositions completed during a six-month period of time for one of Iowa’s eight judicial districts. The purpose of this study was to validate a risk assessment instrument and examine a recidivism model that utilized a risk assessment instrument for the prediction of future offending patterns.

Currently a major obstacle to statewide planning and service delivery in the juvenile justice system has been the lack of common identifiers with which to uniformly classify juveniles at-risk of recidivism across jurisdictions. Without some type of classification system for juvenile delinquents, evaluators and practitioners run the risk of drawing inappropriate conclusions about an individual program’s success or failure. Program successes might be attributed either to dealing with low risk adolescents or to successful service delivery with high risk youth. In either case, it is necessary to examine what makes programs successful. Through the use of juvenile risk assessments, one can control for client risk when examining outcome information, which not only leads to a more informed analysis, but may be used to assist in determining what programs and interventions work for particular groups of at-risk youth, and enable comparisons among programs that heretofore have not been able to be completed.
CHAPTER TWO: RATIONAL DECISIONS AND THE HISTORY OF RISK ASSESSMENT

This chapter contains a discussion of the rational decision making model, classification systems and clinical and actuarial decisions. A history of classification and risk assessment is also presented.

Rational Decision Making

Decision making is the cornerstone of any organization, and is a particularly visible component of juvenile justice agencies. Suppose a 15 year old juvenile offender named Richard is arrested for carrying a concealed weapon while at school. Law enforcement officials arrest him and placed him in custody and then contact a juvenile court officer (JCO) to begin delinquency intake procedures. Upon referral to juvenile court, the JCO assigned to Richard would potentially have a number of decisions to make concerning the appropriate sanction or action to take. The JCO could choose to do nothing (i.e., dismissal), but even that would be considered a decision since the JCO had a choice between doing something and doing nothing. In making a decision like dismissal or any of the other possible decisions (e.g., warn and release, grant informal adjustment, file a petition for adjudication), the JCO most likely would rely on available information in making the “appropriate” decision. Decisions made when the decision maker (JCO) maximizes the probability of achieving the purpose intended by utilizing the available information are referred to as “rational decisions” (Gottfredson and Gottfredson, 1988, 1997a; Gottfredson and Uhllein, 1992).

According to the Gottfredsons (1994), “rational decisions” consist of three main characteristics. First, there is assumed to be a goal or set of goals, purposes, or objectives. If it is not known what is sought to be achieved, then it is not possible to assess the rationality of any particular decision choice. Second, there must be an alternative; if there is no choice then there is no decision to be made. Third, it is assumed that at least some information is employed in the making of the decision.
Information here refers to both empirical data as well as general knowledge available about the case in question.

The implementation of the rational decision making model implies a particular strategy of decision making. The strategy is to select the best option from among all those available, that will most likely achieve the desired objectives. There is a need for periodic re-evaluation of the decision strategy because decision objectives and options may change, be abandoned or new ones developed. A relatively recent phenomenon occurring among juvenile justice agencies has been the design and implementation of management information systems that "house" information about an offender's characteristics, case processing issues, and other relevant information. As information systems are developed to provide data to allow for rational decisions, there should be a systematic provision for re-assessment and modification with changing circumstances and growing knowledge (Gottfredson and Gottfredson, 1988, 1997a).

As the focus of juvenile justice has shifted from the rehabilitation of individuals to a system of rationality and accountability in regards to the management of groups of offenders, a desire to know as much as possible about the future likelihood that one will recidivate has surfaced. The desire to incorporate the rational decision making model into juvenile justice decisions is evident in the long history of researchers and juvenile justice officials' attempts at creating typologies and classification systems.

The Utility of Classification Systems in Juvenile Justice

It seems to be human nature to group people into certain categories. Sex, age, and race are three categories that people often use. Categorization based upon such external characteristics are sometimes imprecise, but depending upon one's purposes for making such classifications, the level of accuracy obtained may be satisfactory. However, classifications made in regards to juvenile offenders requires a deeper level of knowledge about an individual. The purpose behind classification systems developed for the "juvenile justice world" has been to obtain
enough information to allow for the categorization and organization of juvenile offenders into meaningful groupings (Guarino-Ghezzi, 1996; Merargee, 1976).

A basic premise of correctional classification is that offenders compose a markedly heterogeneous group and, furthermore, that it is both theoretically interesting and practically useful to consider ways of subdividing them into meaningful categories. It is hoped that somewhere between the extremes of “all offenders are alike” and “each offender is unique” lies a system (or systems) of categorization along pertinent dimensions that will prove to be of value in reaching correctional goals. The primary goal of classification systems is to aggregate individuals into subgroups that share common symptoms, etiology, behavioral attributes, or other relevant characteristics (Gibbons, 1975).

In juvenile corrections, the first attempts at classification were for the purposes of making institutional placements, and were based merely on sex; men were sent to institutions for men, women to institutions for women (Guarino-Ghezzi, 1996). While there was nothing sophisticated about this, it was extremely accurate. But as services and professional service providers became increasingly differentiated into psychology, psychiatry, and social work, it became increasingly expedient to refine the process of classifying offenders.

Most past attempts at classification were based exclusively on treatment models, rather than risk of recidivism, because they were developed at the same time the “helping professions” - psychology, psychiatry, social work - came into prominence. The early classification models were based on treatment needs, and treatment needs alone, to the exclusion of factors about the seriousness of the offense or the pattern of prior offenses. Second, early models were highly subjective, and were based on clinical interviews between psychologists and offenders. On the basis of only one meeting, psychologists would often determine the reasons for the youth’s behavior and the appropriate treatment. If the youth did not improve, the treatment would simply continue until progress was demonstrated.

More recent efforts to develop such typologies have been based on theories about career criminal patterns (Gibbons, 1965, 1975), perpetrator-victim
relationships (Cornell, Benedek, and Benedek, 1987a, 1987b, 1989), social class and subculture reference group (Cloward and Ohlin, 1960), and developmental theory (Jesness, 1974; Jesness and Wedge, 1984). However, the methods used in most of these studies does not allow the determination of whether the clusters or typologies identified represent the cognitive schema of juvenile justice professionals (Dicataldo and Grisso, 1995). Other research methods than those employed would be required to verify the use of the clusters and typologies in understanding how professionals organize their perceptions in the process of making decisions about juveniles. No classification system or risk assessment, for that matter, has been developed that can predict human behavior with 100 percent certainty. Recognizing that 100 percent accuracy is not a realistically obtainable goal, researchers are left with the task of designing mechanisms that can reduce the uncertainty to the point where "wrong predictions" occur as infrequently as possible. It is exactly this desire, to optimize the predictive accuracy of juvenile justice decisions, that has fueled the creation and implementation of assessment devices among juvenile justice agencies.

Clinical Decisions

Historically, decisions made in juvenile justice regarding placement, dispositions, and classification have been based on either clinical or informal assessments of offenders regarding their psychological profile and perceptions of future recidivism, dangerousness, and seriousness of future offending. Clinically based decisions are decisions made about specific individuals by "experts" who assess the individuals in terms of various psycho-social and other related factors. Clinical decisions have often been criticized for being based on interpretations and intuition rather than on empirically derived methods that could be verified (Fagan and Guggenheim, 1976).

The impact that clinical methods have had upon juvenile court judges' decisions has been found to be tenuous at best (Niarhos and Routh, 1992). In examining the role of clinical assessments in the juvenile court in regards to
predicting juvenile dispositions and recidivism, Niarhos and Routh selected a random sample of 234 cases in which male juveniles were arrested and subsequently evaluated by a juvenile court mental health clinic. Two outcome variables were identified, recidivism and dispositional alternatives. Recidivism was defined as a return to court or to detention within one year of the current violation. Dispositional alternatives were defined as belonging to one of six categories: dispositions involving probation (community control), dispositions involving placement in a non-residential program, placement in a foster home or group home, placement in a halfway house or open institutional facility, placement in a structured residential facility, and placement in a correctional facility.

Niarhos and Routh (1992) collected data on 38 different variables from assessment reports. Using Pearson's correlations, the researchers found that the number of prior offenses was the only variable related to both disposition and recidivism. Two variables were found to be related to disposition only, the detention decision and the psychologist's recommended placement. There were also two variables found to be related to recidivism only: academic achievement and history of substance use. The findings from this study indicated that for both outcome measures, a large amount of variance was left unaccounted, suggesting that such traditional assessment reports have low validity and little influence on the juvenile court decision-making process.

**Actuarial Decisions**

In contrast to clinical decisions, actuarial decisions or predictions are based on assessments of how "similar" people socially situated in the same contexts and possessing the same characteristics have behaved in the past to predict how they will behave in the future (Sarbin, 1986). "Actuarial based decisions" refers to a statistical and empirical method that allows for predictions regarding some future decision to be made. In juvenile justice, actuarial based decisions are made by utilizing empirical and statistical methods to determine "recidivism," in much the same ways as insurance companies calculate insurance rates for automobiles.
There has been much debate among researchers and practitioners in regards to which of these methods (clinical or actuarial) is more accurate. Most of the studies that have been conducted in regards to this debate have found that actuarial methods are superior to clinical methods (Caroll, Wiener, and Coates, 1982; Dawes, Faust and Meehl, 1989; Glaser, 1954; Hassin, 1986; Meehl, 1954; Monahan, 1981; Sawyer, 1966). In addition, informal risk assessments and classification systems have been criticized because they lead to decisions that may be erroneous, inconsistent or inequitable, and lack accountability as a result of the "invisible" rational criteria used by the decision maker (Baird, 1984; Clear, 1988). In a study conducted in Oklahoma, discrepancies were found between actual and risk indicated levels of supervision, which led the authors to conclude that the use of informal methods resulted in a significant degree of under classification (Wiebush et al., 1993).

In a 1993 address to the Seventh National Roundtable on Child Protective Services, Dennis Wagner of the National Council on Crime and Delinquency (NCCD) indicated that the empirical evidence that has been gathered strongly supports the use of actuarial methods. However, in his Ph.D. dissertation published just one year before, he indicated slightly less enthusiasm for actuarial devices (Wagner, 1992). Wagner subjected two separate samples (a construction sample of 1,503 inmates released in 1981 and a validation sample of 1,756 inmates released in 1982) of inmates to a risk assessment instrument he created from factors identified in previous research to have a significant statistical relationship to prison recidivism or criminal behavior. His two samples consisted of cases that had been originally disposed of by the Wisconsin Board of Parole using clinical judgment. In his study he claimed that the uniqueness of the board of parole led to findings that actuarial methods were not as superior to clinical methods as he originally hypothesized. Although actuarial predictions were still found to be slightly better on every test he ran, he ultimately concluded that clinical and actuarial methods should be used together in making case processing decisions within the criminal justice system. One of the primary reasons he and others have given for recommending
the combined use of both methods is that actuarial methods do little to account for mitigating factors about a given case (Clear, 1988; Howell, 1995; Wagner, 1992). In addition, Wagner (1992) suggests that actuarial risk assessment should not be viewed as an automatic decision making machine which ignores the judgment of professionals. The ideal would be if a correctional caseworker would evaluate a case by performing an actuarial assessment and then exercising his or her own discretionary clinical judgment.

History of Risk Assessments and Actuarial Methods in Penology

Historically, risk assessment and classification have been informal, highly discretionary procedures performed by individuals with varying philosophies about juvenile justice, different levels of experience and knowledge, and different criteria for making assessments. The use of formalized risk assessment instruments (for making juvenile court case processing decisions) based on actuarial methods that have been validated in a given jurisdiction is a fairly recent phenomenon. However, the implementation and study of risk assessments used in other areas of penology (e.g., adult corrections) stretches back to the 1920s. These early actuarial studies focused on assessing suitable candidates for prison release and as such provided valuable tools for parole decisions (Wagner, 1992). The first actuarial study was undertaken by Burgess (1928) at the request of the Illinois Parole Board to examine 1,000 inmates released on parole. Recidivism was defined simply as success or failure after prison release. Failures were defined as those offenders who committed a new offense or violated parole conditions for which they were returned to prison. Inmates who were classified as successful were those who did not return to prison. Using this definition of recidivism, Burgess recorded a number of characteristics pertaining to an individual offender prior to the parole decision and then examined their relationship with the recidivism measure.

The actuarial model that Burgess developed assessed 21 inmate characteristics as predictors. These ranged from a count of prior criminal convictions to qualitative classifications of an inmate’s social development pattern
as: conventional; respected citizen, socially maladjusted, and the like. It was found that each predictor item demonstrated a strong, positive relationship to parole failure in the research sample. The formula Burgess used assigned one point to characteristics associated with parole failure, which resulted in a possible range of scores between zero and 21.

The assumption that underlies the Burgess model and all actuarial prediction schemes is that individuals with similar characteristics will behave in the future very much as they have in the past. Actuarial methods use group probabilities to estimate the success or failure of an individual case. Of course, a probability estimate does not apply in an exact sense to any individual. Each individual released from prison eventually fails or succeeds.

In 1947, empirical attempts to classify offenders received a big boost when Berkson developed a statistical technique referred to as mean cost rating (MCR). Mean cost rating allowed researchers to evaluate predictive devices by comparing costs, in terms of false positives and false negatives, and utilities in terms of true positives and true negatives (Berkson, 1947). The application of MCR in the criminal justice literature began in the early 1950s and was used primarily to measure the predictive accuracy of instruments designed to classify offenders according to their estimated probability of recidivism (Duncan et al., 1952). An example of such an instrument is the Salient Factor Score (SFS), a risk prediction instrument that has been used by the United States Parole Commission as part of a system of explicit parole decision making guidelines (Hoffman and Beck, 1974, 1976, and 1980; Hoffman, Stone-Meierhoofer, and Beck, 1978).

As statistical techniques were developed and adopted, the need to tie risk models to theory became desirable. In an attempt to replicate Burgess' findings, Glaser conducted a study in 1954 using a sample of 2,693 subjects released from Illinois prison between 1940 and 1949. Glaser's approach to actuarial prediction involved an effort to incorporate sociological theory (Glaser, 1954). Glaser drew heavily upon Sutherland's theory of differential association (Sutherland, 1939). Glaser had viewed actuarial prediction as a practical tool for parole decision making
and as a promising method for theory development. As time passed, interest in testing theory took a back seat to practical utility. Glaser's research was important not just because of the attempt to connect risk assessment to theory, but for at least two other major reasons. First, he used a relatively large sample of inmates, which at that time required a considerable commitment of time and resources. Second, his study confirmed that many of the criminal history measures employed by Burgess more than 20 years before were still very useful predictors.

Beginning in the early 1970s, a number of efforts were undertaken in adult corrections to increase the implementation of quantitatively based tools for making various correctional decisions. These efforts focused on the development of assessment instruments referred to as “guidelines” for parole, sentencing, and bail release (Goldkamp and Gottfredson, 1987; Gottfredson, Wilkins, and Hoffman, 1978; Kress, 1980; Wilkins et al., 1978). These major studies served as prototypes for the similar attempts that followed, and each relied heavily upon statistical prediction methods in the formulation of the decision making structure. These efforts were termed guidelines because they were seen as advisory rather than binding.

The Salient Factor Score (SFS) used by the United States Parole Commission was based on an actuarial formula which assigns a score ranging from zero to ten points to each inmate. Since the SFS was constructed to predict success after prison release (i.e., no recidivism) rather than failure, higher scores estimate a lower failure rate. In a five-year post-release follow-up of 1,806 federal prisoners released in 1970, 470 or 26 percent were returned to prison for what Hoffman and Beck (1985) considered a serious crime (i.e., a new sentence was received that exceeded one year). Only 9 percent of the inmates with a SFS in the eight to ten point range were recidivists compared to 40 percent of those scoring between zero and three points. Those scoring four to five and six points failed at rates of 29 percent and 18 percent respectively. The recidivism rate for the SFS was defined as the number of inmates who failed divided by the total number in the table classification.

Hoffman and Beck's (1985) findings demonstrated the ability of a simple
actuarial device to classify inmates along a continuum that yields meaningful estimates of recidivism risk. The recidivism rate in the highest classification (40 percent) is more than four times greater than the lowest (9 percent). In effect, this actuarial model was deemed to have considerable face validity as a mechanism for sorting inmates. On the other hand, it does not approach perfect prediction for individual cases. Fully 60 percent of the 617 inmates placed in the highest risk group (zero to three SFS score) were not recidivists given the definition employed. If the expectation was that the formula identified inmates with a 100 percent recidivism rate, it was wrong more than it was right. Failure to achieve this level of performance does not, however, seriously threaten the utility of the SFS as an actuarial tool (Gottfredson, Wilkins, and Hoffman, 1978). Perfect forecasting is not, after all, a reasonable objective for predicting human behavior.

**History of Risk Assessments in Juvenile Justice**

The use of clinical assessments and informal devices has had a long history in juvenile justice, but the use of risk assessment instruments is a relatively recent phenomenon. During the early and mid 1980's the desire to develop assessment instruments greatly increased as public sentiment and juvenile justice philosophies changed. The results of these changes has been an increase in both the development and implementation of assessment instruments with adult corrections, as well as an expansion into other areas of penology including juvenile justice (Wagner, 1993). Risk assessments have become important tools to estimate the likelihood that an identified juvenile offender will subsequently commit another offense within a specified follow-up period (e.g., 18-24 months). Another reason that these instruments have become important is their ability to provide a link between the types of offenders and the appropriate types of interventions and services. The basic allure of risk assessment tools is that they incorporate existing decision making factors into a relatively smaller number of items that can aid criminal justice officials in making case processing decisions.

A 1989 national survey of the use of risk assessments found that of the 37
states responding, almost half used formal risk assessment tools to make classification decisions. An additional 30% of the agencies responding reported the use of formal classification procedures that did not include risk assessment (Barton and Gorsuch, 1989).

The National Council on Crime and Delinquency has had a long record of incorporating research based risk assessment information into case management procedures in juvenile and adult corrections. NCCD has worked with over 25 criminal and juvenile justice agencies during a number of years in the late 1980's and early 1990's (Wagner, 1993). NCCD is the only organization that has conducted risk assessment studies and implemented risk oriented case management procedures in juvenile corrections, adult corrections and child welfare. In most of these studies, risk was referred to as the likelihood that a correctional client will commit a criminal act in the near future, usually within one or two years.

The idea of risk assessment is consistent with the "new penology" because it is a device that assists in decision making as well as in addressing some of the most pressing penal concerns -- rising costs, problems associated with crowding, and the effective and efficient distribution of juvenile court services. One of the primary reasons risk assessments have increasingly gained attention is that they are tools that allow for the allocation of limited resources more effectively by directing the most intensive and intrusive interventions to the most serious, violent, and chronic offenders. Other major reasons for the increased popularity are: that they allow for the uniform classification of offenders; they provide greater validity, structure, and consistency to the assessment and decision making process; and they create uniform decision making (Halford, 1997; Howell, 1995). Rather than treating all offenders entering probation or parole the same, risk assessment allows juvenile justice agencies to "better" identify the high risk cases and provide them with more supervision than low risk cases. Controlled studies demonstrated that intensive service intervention significantly reduces the incidence of new criminal offenses committed by high risk clients, but has little impact on low risk offenders (Baird, Heinz, and Bemus, 1981; Eisenberg and Markley, 1987).
CHAPTER THREE: RISK ASSESSMENT AND PREDICTIVE ACCURACY

This chapter describes the purpose behind risk assessment and discusses the issues related to design and implementation of risk assessment instruments.

**Purposes of Risk Assessment**

One of the major tenets of both adult and juvenile correctional agencies is to protect public safety by reducing the criminal acts committed by the clients. The ability to predict recidivism constitutes a powerful incentive to estimate the risk of these acts occurring as accurately as possible so the agency can more effectively manage clients placed under their control.

In juvenile justice agencies, risk assessment is used to estimate the "risk" that a client will commit a criminal act. This is done for the following reasons: (1) criminal offenses are viewed as a critical client behavior by all agencies, (2) all correctional agencies wish to reduce the incidence of criminal offenses, (3) they believe that the most effective way to reduce criminal behavior is to identify high and low risk clients and focus service intervention on high risk clients, and (4) they are confident that actuarial risk assessment provides a more accurate and reliable determination of client risk than any other technique.

The use of risk assessment has had some positive results in juvenile justice (Howell, 1985). First, agencies pay more attention to case outcomes and frequently attempt to evaluate how different case interventions impact them. Very few program evaluations are conducted in the correctional setting that do not ask whether the program had any impact on high risk clients. Another positive result is that juvenile justice administrators have a more rational basis for managing existing resources and making decisions for serving clients.

In a study of state training schools in 14 states, it was found that the majority of students scored low or medium on the risk scale and therefore did not require a long-term stay in secure care (Krisberg et al., 1993). It was suggested that the cost
savings could be better spent on developing alternative intervention programs. The U.S. Department of Justice's Office of Juvenile Justice Delinquency Prevention which sponsored "Juvenile Taken Into Custody Statistics (JTIC)," gives further evidence that the states' corrections facilities are not necessarily reserved for the dangerous few, but may be filled with relatively less serious juvenile offenders.

Five primary benefits of formal risk assessments based on actuarial methods have been reported in the literature. First, the use of risk assessments ensures that the same factors are taken into account by all decision makers in all cases, which creates greater consistency in the decision making process (Howell, 1995). Second, the empirical basis for risk assessments increases the validity of the risk assessment process (Clear, 1988; Fischer, 1985). Third, the results of risk assessments directly inform the classification decision, which means that classification and case-handling decisions are more objective and equitable (Wagner, 1992 and 1993). Fourth, unlike the subjective methods of clinical and informal assessments where the decision process is unknown, the rationale for every decision using formal risk assessments is visible and explicit (Gottfredson and Gottfredson, 1994). Ultimately the use of risk assessments makes both the individual decision maker and the agency more accountable (Clear, 1984,1988; O'Leary and Clear, 1984). Fifth, because risk assessments typically consist of a limited number of relatively objective criteria, they are easy to complete and can expedite the decision making process (Howell, 1995).

Risk Predictors

Core Set of Predictors

A national survey of all 50 states' use of risk assessments was conducted in 1992 (Towberman, 1992), just a few years after Barton and Gorsuch's 1989 study. The results revealed that most states have some semblance of a risk assessment instrument. Through this study and a number of other risk research studies pertaining to risk assessment, a similar core set of factors that are predictors of
juvenile offender recidivism have been identified (Baird, 1984; Farrington, 1983; Farrington and Hawkins, 1991; Hawkins, et al., 1992). These factors include age at first referral or adjudication, number of prior referrals or arrests, number of out of home placements or institutional commitments, school behavior and attendance, substance abuse, family stability, parental control, peer relationships, offense severity, history of absconding and psychological measures. In an attempt to find the “model instrument,” Barid (1984) included many of these same items in a study finding that many of the factors identified above provided the best prediction model for a large sample of probationers and parolees in five different sites.

In Towberman’s study of risk assessment usage, it was found that 79 percent of the states who used formal or informal risk assessments used the current offense as a deciding criteria for rating risk. A commonly held assumption among policy makers and practitioners seems to be that the youth who commit serious or violent offenses are more likely to commit subsequent offenses than those who do not commit serious or violent offenses. However, some of the research that has been conducted in regards to risk assessments being used in juvenile justice, challenges this contention. A study conducted on a sample of probationers from Oregon showed little discrimination between the offender’s risk class and either the statutory classifications of offense severity or the parole board’s special crime-scaling system (Clear, 1988). There was some differentiation based on property and drug offense types, but these two categories fell outside of the overall level of offense severity.

The seriousness of offense will probably continue to be examined for some time to come, especially given the general public’s tendency to want “just deserts”. When an offender commits a serious crime, especially a crime that is particularly reprehensible, people are naturally appalled by the act and repelled by the offender. The desire for the protection of the community from violent and chronic offenders, and public safety in general, has become a part of the decision maker’s concern when deciding the most appropriate option for a given offender. This phenomenon has become known as “stakes.” Stakes are defined as a mathematical combination
of concern for the risk of future offending and the crime severity (Gottfredson et al., 1994).

Stakes

Stakes are separate from risk factors and deserve much more attention than they have received so far. If risk is the probability of a new offense (or violation), then stakes are the harm expected if new offenses are committed. Scales pertaining to stakes need to be designed and the relationship between risk and stakes needs to be further examined. Anecdotal evidence suggests that there is at least some independence between the two. For example, an offender could have a high risk score and at the same time have a low stakes score. An example of high risk and low stakes would be the chronic shoplifter.

The empirical research pertaining to stakes conducted so far has generally been in relation to sentencing or decision making guidelines. A general rule of thumb has emerged from the research, that there should not be a departure of more than 20 percent of the time due to concerns associated with stakes and other special circumstances (Gottfredson and Jarjoura, 1996). However, one of the more well known sentencing guidelines (the Minnesota Sentencing Guidelines) achieves a departure rate closer to 30 percent (Minnesota Sentencing Guidelines Commission, 1982). Regardless of the departure rate, the research suggests that a "good risk instrument" probably will not provide much classification power in terms of crime seriousness (Clear, 1988). When the decision maker allows crime seriousness to influence risk class assignments, the overall power of risk assessment is reduced. Some of the research has found that the seriousness of the current offense is not highly correlated with, and is often inversely related to a negative outcome (Clear, 1988, O'Leary and Clear, 1984).
Site Specific Factors

Early attempts at creating risk assessment and classification systems were often borrowed by other jurisdictions. As agencies and researchers began studying these assessments in regards to validation issues it has been found that because of different policies and practices it is necessary to develop an instrument in the jurisdiction in which it will be implemented. For example, in an attempt to replicate a risk assessment instrument for use in Canada that was designed for use in community corrections in Australia, it was found not to be particularly useful in predicting recidivism there (Trotter, 1994). The limited applicability of the tool was found not to be due to inadequacies in the scale itself, but in the different cultural and political setting in which it was developed.

In an empirical typology of American juvenile courts, Stapelton et al. (1982) presented evidence suggesting that a substantial amount of variation exists among juvenile court jurisdictions with respect to court structure and procedures for case processing. The variables of greatest importance in the decision-making process differ from jurisdiction to jurisdiction and among cases in the same jurisdiction (Horowitz and Wasserman, 1980).

An examination of risk items listed on eight different empirically based risk assessment instruments found that school functioning was the only item that appeared on all of these instruments (Howell, 1985). Age at first referral, number of prior arrests, substance abuse, peers, and family functioning were also typically found to be predictive with each appearing on at least five of the eight instruments examined. The remaining items were included as predictors on half or fewer of the scales. These findings indicate that there are site-specific factors that influence either recidivism or the measurement of it and that some of the items increased the prediction or classification power of the tool in some jurisdictions, but not in others. It has become commonplace, however, for a jurisdiction to borrow a device developed somewhere else and put it into use with few or no changes and without separate validation (Clear, 1988; Gottfredson et al., 1994; Wright, Clear, and...
Dickson, 1984). However, this does not mean that items found on valid instruments created for use in other jurisdictions should not be used in the design process. It means that the local policies and practices need to be considered before finalization of an instrument.

The uncritical adoption of an instrument validated in another jurisdiction is a mistake for two basic reasons. First, and most significant, the instrument may not be valid for the new population. The second reason for not simply borrowing an instrument is that the development process can have very positive side effects for an agency. Going to the trouble to design, supervise, modify, and report research on risk screening makes an agency a much more informed consumer of the technology and advances the state of the practice for the field. There is no better way to become acquainted with the limitations of and potential uses for a risk device than to be responsible for the creation and validation of one.

**Juvenile Court Case Processing Stages**

The juvenile court process is composed of a number of different stages (i.e., referral, intake, disposition, detention). Just as there are site specific factors that make the transferability of risk assessment instruments suspect without taking into account local practices and policies, there are also similar concerns related to transferring risk assessment instruments designed and validated at one stage to another stage of case processing. Most of the research focusing on this issue indicates that separate design and validation should occur at the various stages (i.e., Van Dine, 1977). A larger number of juveniles are involved at the “front end” stages (e.g., referral and intake) of juvenile court case processing, than at each of the subsequent stages such as adjudication and disposition (OJJDP, 1996). In other words, only a small percentage of those juveniles who are referred to juvenile court end up receiving a formal sentence from the juvenile court (e.g., placement in a residential treatment facility or formal probation). Each of the juvenile court case processing stages have various implications for risk assessment. This is because the characteristics of the offenders and the nature of their offending changes
somewhat at each stage. In order to discuss juvenile court case processing at a national level, the U.S. Department of Justice has developed a model of juvenile court activities that may be applied across the nation (OJJDP, 1996). There are six major stages that the U.S. Department of Justice has identified: intake, transfer, petitioning, adjudication, disposition, and detention.

The referral and intake stages, which are often part of one stage, are where a number of juveniles come into contact with the system. Many of the juveniles receive no further services or may be diverted from the system into "special programs" (e.g., shoplifters class). At this point, the intake officers may decide to dismiss a case for lack of legal sufficiency or to resolve the matter formally or informally. Informal (i.e., non-petitioned) dispositions may include a voluntary referral to a social agency for services, informal probation, or the payment of fines or some form of voluntary restitution.

The stage referred to as transfer is where the intake officer decides whether a case should be removed from juvenile court and handled instead in criminal (adult) court. In such cases a petition is usually filed in juvenile court asking the juvenile court judge to waive jurisdiction over the case. The juvenile court judge decides whether the case merits criminal prosecution. If it does not, the matter is usually scheduled for an adjudicatory hearing in the juvenile court. Some states, like Iowa, have special provisions that allow for some types of offenders under 18 years of age (e.g., class A felons) to be automatically excluded from juvenile court jurisdiction and handled directly in criminal court (Huff and Hudik, 1997).

Petitioning occurs if an intake officer decides that a case should be handled formally within the juvenile court. The intake officer or juvenile court officer files a petition with the court and the case is then placed on the court calendar (or docket) for an adjudicatory hearing. A small number of petitions are dismissed for various reasons before the adjudicatory hearing is actually held.

At the adjudicatory stage or hearing, a juvenile may be adjudicated (judged) a delinquent or status offender, and then the case would proceed to a dispositional hearing. Alternatively, a case can be dismissed or continued in contemplation of
dismissal. In these cases, the court often recommends that the juvenile take some actions prior to the final adjudication decision, such as paying restitution or voluntarily attending drug counseling.

The dispositional stage is where the juvenile court judge determines the most appropriate sanction, generally after reviewing a predisposition report prepared by the juvenile court officers. The range of options available to a court typically includes commitment to an institution; placement in a group or foster home or other residential facility; probation (either regular or intensive supervision); referral to an outside agency, day treatment, or mental health program; or imposition of a fine, community service, or restitution order.

The detention stage is different from the others in that it may occur at the front end or at other stages in the system. Even more than the above mentioned stages, detention practices vary greatly from jurisdiction to jurisdiction. A judicial decision to detain or continue detention may occur before or after adjudication or disposition.

**Invidious Predictors**

It is a known fact that two variables that are usually fairly predictive of recidivism are two control variables (race and sex). Decision makers have become very sensitive when making decisions based on race and sex (Bishop and Frazier, 1996; Gottfredson and Jarjoura, 1996; Lieber, 1992; Lieber and Jamieson, 1995; and Wordes, Bynum and Corley, 1994). The manner in which risk assessment instruments handle these concerns has ramifications beyond the assessment process, especially since these tools are being used for the allocation of services and for making decisions regarding placement.

Most guidelines, classification systems, and risk assessment instruments usually deal with the potentially political issue of tackling hard ethical questions regarding sex and other factors by eliminating them from consideration. The Minnesota Sentencing Guidelines Commission, attempted to deal with race and sex (as well as social economic status) by making the guidelines neutral (Minnesota Sentencing Guidelines Commission, 1982). This is in actuality, however, a difficult
objective to achieve, primarily because sex and race tend to be correlated with a number of the other variables in the model.

Simply omitting invidious predictors from consideration does not remove their effects from the typical risk assessment scale (Gottfredson and Gottfredson, 1994; Gottfredson and Jarjoura, 1996). The basic problem with simply omitting objectionable or invidious predictor items from multivariate models in an effort to purge their effects is that shared or common variance is left behind to affect the weights of variables felt legitimate for inclusion (Fisher and Kadane, 1983, Goldkamp, 1987; Petersilia and Turner, 1987).

Through the use of a validation and control sample collected from juvenile court cases in Maricopa County, Arizona during calendar year 1991, the Gottfredson's conducted an examination of possible ways to deal with race and sex (Gottfredson et al., 1994). A total of 3,303 first time juvenile offenders who had no previous adjudications were selected. The criterion variable used in this study was defined as a new referral within one year after receiving a juvenile court disposition. The three methods that were examined included: (1) removing the effects and ignoring them, (2) leaving them in and providing weights (e.g., a female would get 0 and a male would get 1), and (3) leaving them in and controlling for the effects of sex by ensuring that all offenders were treated alike. Using ordinary least squares regression, the model that provided the best prediction model was the one in which the Gottfredsons made a decision to treat all sample members as white males. This finding led the Gottfredsons to believe that the decision to treat all members the same "ameliorates the effects" of legally or ethically suspect variables. This is a revolutionary idea and research regarding this issue needs to be further developed given the policy implications that such a method will have in regards to the equity of juvenile court decisions. According to the Gottfredsons (1994), this method of "ameliorating the effects" of variables like race and sex, is much better than the alternative of eliminating all of the variables correlated with the suspect factors from consideration in a statistical model. The elimination of all of the suspect factors would attenuate the power of the models as to render practical decision-making
tools based on them useless and would most likely make the validity of such models suspect.

**Steps for the Development of Risk Assessments**

Most researchers begin with a representative sample of closed cases and obtain risk assessment data in conjunction with various “failure criteria” (Fischer, 1985; Gabor, 1986). Much of the research has identified the need to obtain at least 50 cases for each variable to be used to construct the instrument, with a similar number being used in the validation sample. Most of the early prediction instruments used approximately 10 variables which would mean that 1,000 cases is probably sufficient (Clear, 1988).

A second main step in the design of risk assessment devices is to randomly divide the sample into two sub-groups, a “construction” sub-sample and “a validation” sub-sample. The prediction model is developed using the construction sample and the reliability of its estimates are tested on the validation sub-sample. The primary reason for doing this is to guard against prediction outcomes that are based on “chance correlation.” Some researchers have argued that dividing the sample may result in a loss of prediction power (Gottfredson and Gottfredson, 1986). However, Clear (1988) argues the technique of dividing the sample provides an independent new estimate of the base rates of the sub-groups and can be valuable for understanding the instrument’s validity as well as the limitations of the cutoffs chosen for establishing sub-groups.

The third step is generally identified as constructing the model. Multiple regression appears to be the statistical method used to create the statistical model that is essentially the combination of factors and their weights which taken together do the best job of indicating whether an offender will fail. Clear (1988) says that the model can also be thought of as a “scale” which is correlated with the criterion variable. Although logistic regression and discriminate function analysis are not used much in juvenile justice, they can be efficient ways to identify the risk factors. Some statisticians (Poulos, 1994) believe that loglinear or logit are probably better
techniques for use with dichotomous variables. Don Gottfredson argues that due to the "sloppiness" typically found in juvenile court data, it really does not matter which type of regression is used (Gottfredson et al., 1994). In addition to these statistical methods, cluster analysis procedures have also been used to validate risk assessment instruments. The idea is to find a scheme that provides "the best fit of the data." The limitation of any of these statistical methods and risk assessments in general is that they do not empirically provide information about treatment needs or placement decisions or protection concerns.

The fourth step in the design of a risk assessment instrument is to validate the model. Numerous states and juvenile court jurisdictions have run into problems of validity when they simply adopted an instrument from another locale without accounting for local policies and practices (Huff and Prell, 1996; Wagner, 1993, 1994). Separate development of a risk assessment instrument is ideal and separate validation is essential. The fifth step in the design process is to periodically repeat the first four steps (development of a study sample, dividing the sample, constructing the sample, and validating the model).

**Prediction Error**

According to Fischer (1983a), because it is impossible to predict human behavior with certainty, a prediction system can err in two general ways; under-prediction or over-prediction. Clear (1988) identified four different types of prediction outcomes:

- True positives - is where a corrections official correctly predicts that the offender will recidivate;
- True negatives - the corrections official correctly predicts the offender will not recidivate;
- False positives - the corrections official incorrectly predicts that the offender will recidivate;
- False negatives - the corrections official incorrectly predicts that the offender will not recidivate.
Research has shown that for earlier stages of criminal or juvenile court case processing (i.e., referral or intake) the base rate for new offenses is somewhere between 20 and 25% (Clear and O'Leary, 1984; Huff and Prell, 1996). Such research has also shown that prediction methods enable about 60-70 percent prediction accuracy. This means that a number of offenders are classified as safe while in actuality they are risks. False negatives result in costs to the victims of crime, including financial burdens and less easily quantifiable emotional harm and personal loss. There is also an intangible loss to the community that happens as a result of crimes. False positives also produce direct costs to citizens. Offenders are forced to experience levels of control that are unwarranted and unfairly intrusive. Tax payers must bear the burden of paying for expensive correctional control — especially as new prisons are being built across the country at a fairly brisk pace. According to Clear (1988) false positives also create opportunity costs, because the money must be diverted from other possible public services, such as schools or roads, to provide the correctional service.

**Recidivism**

One of the problems with risk assessments has been in regards to the definition of recidivism; it has been defined as different things (e.g., risk of returning to prison, risk of re-referral to court, risk of committing another violent offense). Therefore, it is important that any study identify and define exactly what recidivism means. Most of the juvenile justice research uses dichotomous variables; either they get referred or not. However, some risk assessment research has attempted to utilize multi-level recidivism variables (Fischer, 1985).

Some types of future delinquent or criminal behavior are more difficult to predict than others, while the predictions of non-violent behaviors tend to be somewhat easier. Violence and sex offending has been difficult because of the low base rates and past failures of prediction methods (Fouty, 1982). A study using self-reported delinquency data, conducted by Capaldi and Patterson (1996) examined
the issue of whether violent offenders can be distinguished from frequent non-violent offenders. The sample consisted of approximately 200 boys who were followed as a cohort from 4th grade through the end of high school. The researchers stated that the sample was selected from schools in the higher crime areas of medium-sized metropolitan region in the Pacific Northwest and were “considered a risk for later delinquency.” The findings from this study generally supported the authors’ contention that violent offenders have similar backgrounds to frequent, but non-violent offenders.

Recidivism rates have traditionally been the benchmark by which success or failure of correctional interventions have been judged. Under the “new penology,” recidivism rates continue to be important measures, but their significance has changed. Recidivism rates are no longer viewed as measures of whether offenders are being successfully or unsuccessfully reintegrated into their communities, but rather they are seen in a new context of assessing efficiency and management strategies (Feeley and Simon, 1992; Nidorf, 1995). High rates of parolees being returned to prison once indicated program failure, but now they are offered as evidence of efficiency and effectiveness of parole as a control apparatus.

**Measuring Predictive Accuracy**

**The Mean Cost Rating Statistic**

Mean cost rating (MCR) is a popular statistic for measuring predictive efficiency in situations where the criterion variable is dichotomous, as is the case with the majority of prediction studies in criminal justice (Fischer, 1985). The MCR statistic allows a researcher to evaluate predictive devices by comparing costs, in terms of false positives and false negatives, and utilities in terms of true positives and true negatives (Berkson, 1947). MCR scores vary from 0.00 to 1.00; a score of zero indicates a null prediction and a score of 1.00 indicates a perfect prediction. The MCR statistic has been shown to be a special case of Somer’s D and closely related to Tau C, which means that it may be interpreted as a test of statistical
significance (Greene, Hoffman, and Beck, 1994; Mande, 1988).

The general rule of thumb is that for a device to show any utility for screening purposes, it must demonstrate a value of at least .250, and a value of at least .350 to significantly improve on existing clinical judgments (Fischer, 1985). Most researchers have been unable to obtain values of MCR exceeding .400 when attempting to predict recidivism. For example, the Federal Salient Factor Score, which is perhaps the best known and most widely applied actuarial instrument developed for use by the United States Parole Board, was only able to obtain values of MCR in the .350 range (Hoffman, 1980).

**The Iowa Scale**

In an attempt to improve on the .400 norm for MCR values associated with recidivism prediction, Fischer began a long-term research project between 1975 and 1980 on released probationers and parolees in Iowa. A sample of over 6,400 cases was collected to construct a predictive scale referred to as the Iowa Offender Risk Assessment Scoring System (Fischer, 1980, 1981, 1983a, 1983b). The intention of this scale was to predict general recidivism and further violence incidences. Items included in the database included a variety of alternative measures of probation and parole outcomes as well as a variety of offender characteristics to serve as potential predictors. Once the scale was created, it was validated against a separate sample of 9,378 probationers and parolees released in the late seventies. Both the original construction sample data and the validation sample resulted in MCR values between .550 and .650 depending on the outcome variable used.

In 1984, to allow for a more technically precise validation of the original version and to facilitate replication attempts by researchers outside of the state, a sample of 1,000 offenders released from Iowa prisons by parole or expiration of sentence during 1976 and 1980 was selected. This was a random sample selected with one restriction, that a case was excluded if a quality pre-sentence investigation was not available in the files of the Board of Parole. For the purposes of devising the coding mechanism for the 1984 version of the model, consideration was limited
to 814 cases of the total 1000 available for examination. The remaining 186 cases were held back as a validation sample. Three outcome variables were studied: (1) a new charge for a violent felony, (2) a new prison sentence, and (3) if the case met either one of the previous conditions or both of them simultaneously. A four year follow up was undertaken on each case, with results coded for inclusion in the database. All new criminal charges were coded with months to each new charge and to each new conviction specified. Finally, the number of months until return to prison as a parole violator was also included. For the composite sample of 1,000 cases, Fischer reported MCR scores of .704, .622, and .654 for the three outcome variables (Fischer, 1985). In an attempt to further show the value of the Iowa Scale, Fischer employed two additional statistical procedures (rated accuracy and the coefficient of predictive efficiency) in conjunction with MCR.

Rated Accuracy

According to Fischer (1985), the utilization of the MCR score in conjunction with the rated accuracy statistic made it possible to measure predictive accuracy in terms of the proportion of cases which were correctly classified (i.e., high risk cases which resulted in recidivism and low risk cases that did not). This was accomplished by calculating the rated accuracy of an instrument, \( P = PC + MCR(1-PC) \), where \( P \) is the proportion of cases correctly classified, and \( PC \) is the proportion of cases correctly classified by chance. For the composite sample, the rated accuracy scores were found to be .907, .844, and .844 as compared to the MCR scores of .704, .622, and .654. Fischer claimed that the rated accuracy statistic was a good measure of the proportional improvement over chance in the predictive efficiency of the device in question (Fischer, 1985).

Limitations and Criticisms of the Iowa Scale

As Fischer began reporting MCR scores above .400 and rated accuracy scores above .800, the Iowa Scale began attracting considerable attention from
criminal justice researchers as well as national criminal justice agencies. The Bureau of Justice Statistics became interested in the Iowa Scale and provided the funding for the 1984 validation study. A number of agencies and researchers reviewed the scale including the National Academy of Sciences (Gottfredson and Gottfredson, 1984), the Washington D.C. parole board, the Rand Corporation (Klein and Caggiano, 1986), and Barid and Lerner (1986). Researchers in Colorado even attempted a replication of the Iowa Scale's results with a cohort of Colorado parolees (Mande, 1988). This attention was not all positive, much of it ultimately resulted in a number of criticisms being aimed at the procedures Fischer used to get such high predictive scores. Two of the overriding themes of the criticisms were that Fischer's claims were too grandiose and his procedures too complicated for practical use. The main criticisms focused on scale construction and validation, the outcome measure, the coefficient of predictive efficiency, and missing data problems. None of the criticisms, however, focused directly on the use of MCR, but rather the methods he used to inflate MCR scores and other predictive values.

Prior to 1985 when he published a report detailing the procedures used in the original scale construction and the 1984 validation study, Fischer was severely criticized for the lack of published information on scale construction, and validation (Gottfredson and Gottfredson, 1984). Beyond the lack of published material at the time of their criticism, Fisher's scale construction was criticized for the use of weighted outcome measures and the development of sub-group scales which were ultimately combined to make the final scales. The concern was that the development of the sub-group scales reduced the effect of sample heterogeneity on the accuracy of predictive devices (Gottfredson and Gottfredson, 1984).

In addition, Fischer's use of weighting the outcome measure came under fire because the outcome variable did not consist of mutually exclusive categories (Barid and Lemer, 1986). Fischer's accuracy results were based on the analysis of a weighted outcome measure which included seriousness, frequency and recency weights of the failure event (Fischer, 1985). Fischer then computed a mean failure rate for each risk level, which the Gottfredsons argued, eliminated all within-group
variance, and enhanced measures of accuracy (Gottfredson and Gottfredson, 1984). The lack of mutually exclusive categories meant that the same offender could have failed as two different types of offenders. Such a finding led Baird and Lerner (1986) to conclude that the issues concerning the Iowa Scale may have had more to do with the outcome measure than with “rated accuracy.”

In his quest to further illustrate the accuracy of the Iowa Scale, Fischer (1985) developed a “total violence threat” criterion which incorporated seriousness, frequency and time measures, and a coefficient of predictive efficiency (CPE). He utilized this statistic to estimate the predictive accuracy of the scale as it related to incapacitation. A violence risk rate was computed for each risk level and the total quantity of violence risk for all levels was used as a measure to gauge the benefits of various strategies of selective incapacitation aimed at the prevention and control of violence among released offenders. The Gottfredsons examined the CPE measure and pointed out that since it ranged in value from 0 to more than 1, the predictive accuracy as measured by CPE could have been greater than 100 percent. This realization led the Gottfredsons to conclude that the CPE contributed “nothing of value” in assessing scale accuracy (Gottfredson and Gottfredson, 1984). Fischer agreed that the fact that CPE could obtain values greater than 1 was a disadvantage, but disagreed with the Gottfredsons that it was a useless statistic. Fischer (1985) argued that CPE had a clear advantage over MCR in that it could be interpreted as a percentage increase in a meaningful quantity, namely the degree of control of violence threat through the use of incarceration.

Another criticism of Fischer’s findings was that he had skewed the data incorrectly by eliminating all cases with missing data from the final sample (Mande, 1988). In an attempt to replicate the Iowa Scale in Colorado, Mande studied a 1982 cohort of Colorado inmates. In addition to the other problems already pointed out, Mande recognized the need to examine various methods of handling missing cases. As such, four different methods were examined: (1) only cases with complete information; (2) the use of missing data weights derived from the data; (3) all missing items having high weights; and (4) all missing items having low weights.
The sample consisted of 242 cases and a base rate of 13 percent recidivism. The findings for the first method showed that the base rate dropped to 12 percent and the number of cases in the recidivism cells were so small that the statistics computed were virtually meaningless. The MCR was .27 for all categories and .15 when the good and poor categories were collapsed. The weights for the second method were derived by running contingency tables with the missing values category by the violent re-arrest outcome measure. Then the score of the category with the distribution most similar to the missing value category on the outcome measure was assigned to the missing value cases. For the third method, assumptions of low score missing values, missing values were defined as the lowest risk score on each predictor. For the fourth method, assumptions of high score missing values, missing values were defined as the highest risk score on each of the predictors. After analyzing these various methods for handling missing data, Mande concluded that because of the low violence base rate, the greatest degree of error resulted from the assumption of a high score when data were missing. Without controlling for missing data, none of the cases were in the highest risk category which obviously became greatly skewed when the missing data was set to that level. Mande claims that by weighting the missing data, the face validity of the relationship between predicted and observed outcomes improves. What is interesting is that after all of her work she fails to specify a preference for handling missing cases.

Mande's findings led her to conclude that the Iowa Scale was not predictive and had no empirical or practical utility in estimating the risk of recidivism when applied to a sample of Colorado inmates. Mande's findings confirm the growing body of evidence that risk assessment instruments developed for use in one locale do not generalize well to other regions or states. She argues that although a core set of predictor variables may be the same, predictive utility of the operationalized versions appears to be dependent upon the policies and practices of record keeping specific to each region or state.

Despite all the criticisms aimed at Fischer and the Iowa scale, the MCR statistic is still viewed to be a useful and meaningful statistic in assessing the
predictive accuracy of a risk assessment instrument (Greene, Hoffman, and Beck, 1994). The criticisms were not leveled at the MCR statistic per se but rather at the methods that Fischer employed in achieving such high scores.

Summary

Risk assessment has had a long history in American penology. Until relatively recently, risk assessment has involved either clinical or informal assessments in regards to case processing decisions. The development of empirically based techniques to create more precise instruments and achieve higher rates of predictive accuracy has led to the design and implementation of risk assessment instruments as a part of the rational decision making process. There are a number of reasons why risk assessments have become popular tools including: they ensure that the same factors are taken into account by all decision makers in all cases; they increase the validity of the risk assessment process; they make classification and case processing decisions more objective and equitable; they allow every decision to be tracked as to the rationale behind the decision; they hold the individual decision maker and agency more accountable; they are usually relatively easy to complete and help expedite the decision making process.

One of the primary limitations of risk assessment have been found in regards to their ability to be transferable across jurisdictions and case processing stages. Another limitation is that risk assessments are not 100% accurate and therefore some false predictions will occur. It is also clear from the literature that further research regarding stakes and invidious factors needs to occur. Stakes involve concerns that are not directly a part of a risk assessment but play an important role in the decision of what to do with serious, chronic and violent offenders. Invidious factors refers to those variables (e.g., race and sex) that are politically and ethically sensitive, but are highly correlated with other variables in the risk model.
CHAPTER FOUR: METHODS

This chapter is divided into 6 parts consisting of: population and sampling, instrument and data collection methods, characteristics of the sample, operationalization of concepts, a description of the data analysis techniques utilized, and an overview of the theoretical model to be tested.

Population and Sampling

The population of this study included the total number of risk assessments (n=133) conducted between March 19, 1996 and September 30, 1996 in the 7th Judicial District in Iowa. The risk assessment instrument was utilized to document the allocation of juvenile court dispositions for every adjudicated delinquent in the judicial district during the study period. Each risk assessment represented a separate disposition, but not necessarily a different juvenile. Five of the juveniles included in the study sample received more than one disposition during the assessment period. Each of these five juveniles committed two or more offenses during the six month assessment period.

The 7th Judicial District is one of eight judicial districts in Iowa and includes five counties (Cedar, Clinton, Jackson, Muscatine, and Scott). The study findings showed that 76.0 percent of the assessments came from Scott, 10.5 percent came from Muscatine, 9.0 percent came from Jackson, and 4.5 percent came from Clinton. While all 5 counties were included in the assessment period, none of the juvenile court dispositions occurred in Cedar County due to small overall population and specifically the low numbers of juveniles involved in the juvenile court there.

The four counties in this district for which data were obtained all border the Mississippi River which flows along the eastern border of Iowa. In the 1990 U.S. Census, the U.S. Census Bureau identified eight metropolitan statistical areas (MSAs) in Iowa. Two of the cities in Scott County (Davenport and Bettendorf) were located in the third largest MSA in the state with a population of 150,979. The numbers for this MSA increased to approximately 350,861 when the two Illinois
cities (Rock Island and Moline) that were also located in this MSA were included. Most of the area outside of Davenport and Bettendorf (Scott County) and Clinton (Clinton County), was typically referred to as rural.

**Instrument and Data Collection**

The data for this study were obtained from several different sources including a constructed risk assessment instrument and four different automated information systems. The data collection tasks were divided into two different phases: the baseline and follow-up data collection. The baseline phase refers to the collection of dispositional risk assessment information from the assessment forms. During this phase, data were also collected from the Iowa Court Information System (ICIS) to augment demographic and offense information not contained on the risk assessment form, such as: county of residence, race, date of birth, the juvenile court officer’s identification number, referral offense, and the various sanctions associated with specific cases. The follow-up data collection phase occurred approximately nine months after the baseline data collection was completed, and it was at this point that the recidivism and outcome information were collected.

**The Intake Risk Assessment Instrument**

The dispositional risk assessment instrument utilized in this study was originally designed as an assessment tool for use by juvenile court officers (JCOs) at the intake stage of juvenile court case processing (Huff and Prell, 1996). At the request of the Governor of Iowa, a work group (i.e., Chief Juvenile Court Officers, the State Court Administrator’s Office, the Division of Criminal and Juvenile Justice Planning, and outside technical advisors) was formed to assist with the strategic planning of assessment methods that could provide greater validity, structure, and consistency to the assessment and decision making process.

The work group explored a variety of issues, including: the type of instrument that would be most useful to line staff, the most appropriate stage or stages of
juvenile court case processing at which to design an instrument, how to construct the instrument and a number of other related issues. In resolving these issues a number of activities were undertaken (e.g., exploration of existing risk assessments validated in other jurisdictions, examining relevant juvenile justice practices, obtaining input from juvenile court officers). Based on the information obtained, the work group decided that it would be most beneficial to design an original instrument for use during the intake stage of juvenile court case processing.

Working with the eight Chief Juvenile Court Officers and their staffs, the Iowa Division of Criminal and Juvenile Justice Planning identified a number of assessment criteria that were examined for their predictability (see Appendix A). A one month test period was selected and then implemented during mid-October through mid-November of 1994. A total of 1,173 useable risk assessments were completed by juvenile court officers state-wide. Approximately eight months later, follow-up data regarding re-offending were collected.

Upon the completion of the data collection period, a number of bivariate (e.g., frequencies, crosstabulations, Pearson's correlation coefficients) and multivariate (e.g., logistic regression) statistical procedures were employed to identify the final risk assessment items and develop the appropriate risk categories. The finalized instrument included six risk items, four selected demographic variables (juvenile's name, sex, disposition date, and the JCO's name), the scoring matrix, preferred recommendations, actual recommendations, reasons, and disposition ordered by the court (see Appendix B).

Once the final risk assessment items were identified, various test instruments and scoring schemes were devised. Risk categories were created by examining recidivism rates of individual risk scores. The test instruments were then analyzed for effectiveness utilizing mean cost rating (MCR). As previously stated, the MCR statistic allows a researcher to assess the effectiveness of a risk assessment instrument by weighting the costs of assessing cases incorrectly at each risk level with the benefits of assessing risk correctly at each risk level in regards to a third factor, in this case re-referral for an additional offense (Berkson, 1947). The MCR
score for the final instrument was .364, which was above Fischer's rule of thumb, "for a device to show any utility for screening purposes, it must demonstrate a value of MCR of at least .250 and a value of at least .350 to significantly improve on existing judgments (Fischer, 1985: 10)."

During the analysis phase of this research project, a number of alternative risk assessments were explored before one was identified which appeared to achieve maximum predictive efficiency. Two control variables, race and sex, were examined with regards to equity issues pertaining to the risk assessment instrument's ability to predict risk. Initially these two variables were left out of the scoring of the instrument. During the process of finalizing the instrument and assigning the weights to the factors, it was decided to examine the effects that these variables had upon the predictive accuracy of the instrument. After running a number of iterations of the instrument while testing various ways in which to handle race (e.g., leave it in, eliminate it, assign weights for whites and non-whites) it was concluded that the instrument was more predictive with race left out of the scoring. For sex, however, it was discovered that females in the medium low, medium high and high risk categories were being over assessed; that is, females' recidivism rates in these categories were lower than those of boys. Therefore, it was decided to adjust for sex in the scoring of the risk assessment. The first reason was that it would ensure sex equity in selecting appropriate dispositions for juveniles based on objective risk criteria. It was hoped that this adjustment would allow both males and females to receive similar dispositions based on their risk. Without this change, some females would potentially have incorrectly received more serious dispositions than males. The second reason for the adjustment was that it improved the predictive validity of the entire risk assessment.

The Dispositional Risk Assessment Instrument

The Chief Juvenile Court Officer (Chief JCO) in the 7th judicial district adapted this finalized risk assessment instrument for use at a later stage than it was originally intended. As mentioned above, the risk assessment was originally
designed and validated at the intake stage of juvenile court case processing. The Chief JCO's purpose of employing this assessment instrument at the dispositional stage was to assess the decision making process of her staff at this point in the system as well as to assess the utilization of community and state resources in making recommendations to the court regarding a juvenile's disposition.

The use of the instrument later in the system prompted two primary concerns with the implementation of the instrument for purposes other than it was intended. The first concern was that the number of juveniles who received a juvenile court disposition was much lower than the number of juveniles who completed the intake stage. The second concern was that most of the juveniles who received a juvenile court disposition had a higher frequency and seriousness of offending as well as a higher propensity for the use of violence compared to those juveniles who completed the intake stage, but were then funneled out of the system with a deferred sentence or an informal adjustment. These two concerns with the utilization of the risk assessment at the dispositional stage prompted the need to conduct a validation of the instrument at this stage of the juvenile court system. The risk assessment instrument utilized in this study is referred to as the dispositional risk assessment instrument and was incorporated without any changes to the assessment items or the scoring mechanism.

The dispositional risk assessment instrument utilized in this study and the intake risk assessment instrument consisted of three major steps which the JCOs completed: First, they added the scores for the first four items (number of current felonies, prior crimes against persons, peer relationships, and school suspensions). If the score was zero the offender was automatically determined to be a low risk. If the score was greater than zero the next step was completed. Second, the JCOs added the score from the first step with the scores of the two additional items (age at first arrest and drug use) and then identified the offender's overall risk level. The third step asked the JCOs to record their preferred and actual recommendations as well as the court ordered disposition.

The Chief JCO provided each of the JCOs in this judicial district with a
guideline to use in recommending dispositions (see Table 4.1). The Chief JCO allowed her staff to indicate their ideal or preferred recommendations and their actual recommendations to the juvenile court. In situations where the JCO's recommendations were different than the guidelines, the JCO was allowed to state reasons for this difference. Ultimately it was the juvenile court officer's recommendation that was referred to the court. Based on the guidelines it was found that 57.1 percent of the actual recommendations made by the JCOs matched the guidelines recommendations. In addition, 21.1 percent of the JCO's

Table 4.1. Disposition guideline

<table>
<thead>
<tr>
<th>Risk Scores</th>
<th>Suggested Dispositions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-4 (Low Risk)</td>
<td>Regular Probation with Curfew</td>
</tr>
<tr>
<td>5-8 (Medium Risk)</td>
<td>Intensive Probation</td>
</tr>
<tr>
<td></td>
<td>Tracking</td>
</tr>
<tr>
<td></td>
<td>Day Treatment</td>
</tr>
<tr>
<td></td>
<td>Residential</td>
</tr>
<tr>
<td>9 or more (High Risk)</td>
<td>Structured or Secure Residential</td>
</tr>
<tr>
<td></td>
<td>Training School</td>
</tr>
</tbody>
</table>

recommendations were below the guideline and 15.8 percent were above it. Most of the reasons given for departure from the guidelines were related to "stakes" (e.g., prior offense history, aggressive behavior, runaway tendencies) or other special reasons (e.g., first time involvement, attitude). In 6.0 percent of the decisions it was unknown as to whether they matched or not. For the most part the juvenile court judges followed the recommendations made by the JCOs. In those few cases where the judges actual disposition was different than the JCOs recommendations, there were two main reasons given -- financial limitations and placement caps due to bed limitations. In many instances the JCOs noted, prior to their recommendation to the juvenile court, that either one or both of these factors were a part of the decision.
Data Collection

Information pertaining to the juvenile delinquents involved in this study were subject to confidentiality laws pursuant to Iowa Code 232. It was deemed necessary to obtain the actual risk assessment forms with all identifiers in place to facilitate the searching and gathering of information from four automated information systems. Access to the data was granted by the Chief JCO in the 7th Judicial District and from the Administrator of the Iowa Division of Criminal and Juvenile Justice Planning pursuant to Iowa Code subsection 216A.136. In addition, the methodology, specifically in regards to the handling of the sample population, was approved by the Human Subjects Committee for Research Projects at Iowa State University.

As mentioned above, the data for the baseline data collection were obtained primarily from two different sources, the dispositional risk assessment forms and the Iowa Court Information System (ICIS). The Iowa Court Information System (ICIS) is a management information system developed for use by both the juvenile and adult courts and was maintained by the State Court Administrator's Office. The information available in ICIS includes: fiscal, personnel, case management and other data elements regarding services provided by court personnel. This system was designed for the main purpose of tracking juvenile court decisions involving those youth under the jurisdiction of the juvenile court. During the study period, the hardware and software for this system were operational in only some of the areas of the state. The 7th Judicial District was one of only two districts where the juvenile component of ICIS was fully operational. The data from this district were entered into ICIS by the JCOs which is not the case in the other judicial districts.

Data from ICIS was collected both on site and at the ICIS located in Des Moines, Iowa. The risk assessment data were entered into a database first, with the follow-up data being entered after the study period had ended which was June 30, 1997. This period of time allowed for at least 9 months of time within which the juvenile could have recidivated. Most of the follow-up data regarding the cases
handled outside of Scott County was provided by the JCOs. However, the data were ultimately checked against ICIS and three other databases. To augment recidivism data for those individuals who had turned 18 years old, three additional information systems were accessed -- the Criminal History Records, the Iowa Community Based Corrections Database, and the Adult Corrections Institution database.

Iowa's Computerized Criminal History (CCH) Records detail the history of an individual's arrests, convictions and incarcerations in state operated institutions. Under Iowa law, if an individual is not convicted of an offense, the arrest must be removed from the individual's CCH record. Therefore, these records will only reflect those arrests where the individual was convicted, or arrests where court action on the charges was still pending. Arrests for "minor" offenses (simple misdemeanors, city ordinance violations and minor traffic charges) were not required to be reported in CCH records (Hudik, 1991 and 1996). Given these shortcomings, two other databases containing information relative to criminal activity were queried to supplement the data in the CCH database in order to portray a more complete picture of the juvenile's criminal activity.

The Iowa Community Based Corrections Database (ICBC) contains data relative to those individuals who have been placed into a formal probation program overseen by community based corrections personnel. This database parallels some information contained in CCH records, however it contained additional data relative to the subject's probation, particularly in the area of probation revocations and other information on arrests and convictions not shown in CCH records. It also contains risk assessment and reassessment data on each individual.

The Iowa Adult Corrections Information System (ICIS) contains data on individuals who were ordered by the court to be incarcerated in an institution operated by the Department of Corrections. The data fields in this database detail, in part, sentencing data as ordered by the court, the offense or offenses for which the individual was incarcerated, admission and discharge dates and other data relative to rehabilitative programs in which the individual participated. This database
shows conviction and incarceration information not contained in CCH records.

**Characteristics of the Sample**

The sample consisted of juvenile offenders between the ages of 9 and 18 at the time of their juvenile court disposition. The mean age was 15.6 (see Table 4.2). Juveniles who had reached their 18th birthday may have still been under the juvenile court's jurisdiction due to an Iowa statute that allows an offender to have their probation extended until their 19th birthday. An examination of the recidivism rates by age, showed that the juvenile offenders with the lowest rate of recidivism were those who were 11 years of age and under (see Table 4.3). Only one age group (14 to 15 year olds) was above the base rate of recidivism which was 57.1 percent. The base rate refers to the mean rate at which the overall sample was re-referred. Approximately 77.4 percent of the sample was male and 22.6 percent was female (see Table 4.2). However, as Table 4.3 shows, the percent of males who recidivated was only slightly higher than the percent of females.

As Table 4.2 shows, 62.4 percent of the study population were White, non-Hispanic, 30.8 percent were African-American, 4.5 percent were Hispanic, and 2.3 percent were defined as other (i.e., Native American, Asian, and mixed). The data pertaining to recidivism, showed that African-Americans had the highest percent (73.1 percent) of juvenile offenders who recidivated, compared to the next highest group (whites) in which just slightly over half of the juvenile offenders recidivated (see Table 4.3). The percent of Hispanics who recidivated was similar to that for Whites, while the rate for the other racial / ethnic group was somewhat lower at 33.3 percent.

The total number of offenses that the juveniles had been charged with ranged between 1 and 11, with an average of 1.9 or almost 2 charges per case that received a court ordered disposition. The most serious offense a juvenile was charged with was examined both in terms of its level of severity (e.g., Class A Felony, Class B Felony, Class C Felony) and its type (e.g. person or non-person crime). The findings showed that a majority of the offenses were non-person
Table 4.2. Demographics of study sample

<table>
<thead>
<tr>
<th>Demographic Characteristics</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 and under</td>
<td>5</td>
<td>3.8</td>
</tr>
<tr>
<td>12-13</td>
<td>12</td>
<td>9.0</td>
</tr>
<tr>
<td>14-15</td>
<td>33</td>
<td>24.8</td>
</tr>
<tr>
<td>16-17</td>
<td>62</td>
<td>46.6</td>
</tr>
<tr>
<td>18 and over</td>
<td>19</td>
<td>142</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>103</td>
<td>77.4</td>
</tr>
<tr>
<td>Female</td>
<td>30</td>
<td>22.6</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White, Non-Hispanic</td>
<td>83</td>
<td>62.4</td>
</tr>
<tr>
<td>African-American</td>
<td>41</td>
<td>30.8</td>
</tr>
<tr>
<td>Hispanic</td>
<td>6</td>
<td>4.5</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2.3</td>
</tr>
</tbody>
</table>

* N = 133

\( \text{a} \) Two cases were missing dates of birth.

offenses (e.g., theft) and that there was a fairly good dispersion among the various severity levels (see Table 4.4).

Juvenile offenders who received a disposition on a felony offense recidivated at 61.8 percent, while those who received a disposition on a misdemeanor offense recidivated at 51.3 percent. Table 4.5 shows that juveniles who received a disposition for aggravated and serious misdemeanors were less likely than those in the other offense levels to have recidivated (excluding Class A Felonies and those few cases where the offense was unknown). The number of offenses for which the study sample received a disposition, ranged from 1 to 11, with 47.2 percent having 1, 39.8 percent 2 to 3, and the remainder having 4 or more offenses.
Table 4.3. Demographics by recidivism rates

<table>
<thead>
<tr>
<th>Demographics</th>
<th>Number of Cases</th>
<th>Percent of Total Cases</th>
<th>Recidivism Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 and under</td>
<td>5</td>
<td>3.75</td>
<td>40.00</td>
</tr>
<tr>
<td>12 - 13</td>
<td>12</td>
<td>9.02</td>
<td>50.00</td>
</tr>
<tr>
<td>14 - 15</td>
<td>33</td>
<td>24.81</td>
<td>72.72</td>
</tr>
<tr>
<td>16 - 17</td>
<td>62</td>
<td>46.62</td>
<td>56.45</td>
</tr>
<tr>
<td>18 and over</td>
<td>19</td>
<td>14.28</td>
<td>47.36</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>103</td>
<td>77.44</td>
<td>59.22</td>
</tr>
<tr>
<td>Females</td>
<td>30</td>
<td>22.56</td>
<td>50.00</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White, non-Hispanic</td>
<td>83</td>
<td>62.40</td>
<td>50.60</td>
</tr>
<tr>
<td>African-American</td>
<td>41</td>
<td>30.82</td>
<td>73.17</td>
</tr>
<tr>
<td>Hispanic</td>
<td>6</td>
<td>4.51</td>
<td>50.00</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>2.25</td>
<td>33.33</td>
</tr>
</tbody>
</table>

\( ^a \) N = 133

Operationalization of Concepts in the Model

One dependent variable, five independent variables, and two control variables were identified as they relate to the general hypotheses. The dependent variable was recidivism. Five independent variables were identified: the risk score, the juvenile court officer's recommendation, the juvenile court's actual disposition, the completion of sanctions, and the period of non-recidivism.

Recidivism

For the purposes of this study, recidivism was defined two different ways. First, recidivism is defined as a dichotomous variable in which the juvenile either was
Table 4.4. Most serious offense by level and type of severity

<table>
<thead>
<tr>
<th>Offense Class</th>
<th>Against Person</th>
<th></th>
<th>Not Against Person</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Class A Felony</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>Class B Felony</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>Class C Felony</td>
<td>5</td>
<td>21.7</td>
<td>10</td>
<td>9.6</td>
</tr>
<tr>
<td>Class D Felony</td>
<td>1</td>
<td>4.3</td>
<td>37</td>
<td>35.6</td>
</tr>
<tr>
<td>Aggravated</td>
<td>4</td>
<td>17.4</td>
<td>13</td>
<td>12.5</td>
</tr>
<tr>
<td>Serious Misdemeanor</td>
<td>4</td>
<td>17.4</td>
<td>31</td>
<td>29.8</td>
</tr>
<tr>
<td>Simple Misdemeanor</td>
<td>9</td>
<td>39.1</td>
<td>11</td>
<td>10.6</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>18.1</td>
<td>104</td>
<td>81.9</td>
</tr>
</tbody>
</table>

^ N = 133
^ Missing Cases = 6

Table 4.5. Offense level by recidivism rates

<table>
<thead>
<tr>
<th>Offense Level</th>
<th>Number of Cases</th>
<th>Percent of Total Cases</th>
<th>Recidivism Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class A Felony</td>
<td>1</td>
<td>.75</td>
<td>0.00</td>
</tr>
<tr>
<td>Class B Felony</td>
<td>1</td>
<td>.75</td>
<td>100.00</td>
</tr>
<tr>
<td>Class C Felony</td>
<td>15</td>
<td>11.28</td>
<td>66.67</td>
</tr>
<tr>
<td>Class D Felony</td>
<td>38</td>
<td>28.57</td>
<td>60.53</td>
</tr>
<tr>
<td>Aggravated Misdemeanor</td>
<td>17</td>
<td>12.78</td>
<td>41.18</td>
</tr>
<tr>
<td>Serious Misdemeanor</td>
<td>35</td>
<td>26.32</td>
<td>54.29</td>
</tr>
<tr>
<td>Simple</td>
<td>20</td>
<td>15.04</td>
<td>70.00</td>
</tr>
<tr>
<td>Unknown</td>
<td>6</td>
<td>4.51</td>
<td>33.33</td>
</tr>
</tbody>
</table>

^ N = 133
re-referred to juvenile court or not. This conceptualization of the variable was used
in the procedures involving validity testing and descriptive analyses.

For path analysis, recidivism was defined as the number of re-referrals to
juvenile court (for either a probation violation or the commission of a new offense) a
juvenile received after the date of receiving his or her juvenile court disposition and
the end of the study period (i.e., June 30, 1997). In other words, recidivism was an
interval-ratio measure utilized to identify the number of re-referrals to juvenile court a
juvenile received during a specific period of time. If a minor infraction (e.g., smoking
on school grounds) was noted in the data sources, but did not lead to a re-referral, it
was not counted as recidivism. Those juveniles who turned 18 years old and were
not under juvenile court supervision at that time were defined as having recidivated if
they had committed a new offense that led to a conviction or an arrest that was still
pending before the criminal (adult) court.

Risk Score

The risk score was an interval-ratio number ranging from 0 to 12. The score
was obtained by summing the following values together: the number of current
felonies (none or one = 0, two = 2, three or more = 3); prior crimes against persons
(no = 0, yes = 3); peer relations (seeks and provides good support and influence on
peers = 0, Fails to avoid negative influences = 1, identifies with others who exhibit
strong anti-social behavior = 2); school suspensions (none or one = 0, two or more =
2); age at first arrest (12 or older = 0, 11 or younger = 1); drug use or abuse (no or
unknown = 0, yes = 1). For the purposes of some of the data analyses (e.g., MCR
scores) it was necessary to code the risk scores into risk levels (i.e., low, medium
low, medium high, high, and very high). Risk levels for males were: low = 0,
medium low = 1, medium high = 2 to 4, high = 5 to 8, very high = 9 or over. For
females, two different versions of risk levels were analyzed; one where females
were scored similar to males, and one where females in the middle categories were
adjusted to lower levels (low = 0, medium low = 1 to 4, medium high = 5, high = 6 to
8, very high = 9 or over).
The Juvenile Court Officer’s Recommendation

The JCO’s recommendation was an intervening variable to the juvenile court ordered disposition and as a dependent variable to the risk score. The JCO’s recommendations were ranked from 1 to 11, the lower numbers on the scale corresponded to lower levels of intrusiveness. Since most of the offenders had multiple sanctions or interventions such as probation, restitution, and community service, the scores for each of the separate items were added together for a total score. The Juvenile Court Recommendation Scale contained the following ranked items:

1. Evaluation (psychological or substance abuse)
2. Placement or custody to a relative/foster care
3. Restitution or community service only or delinquency prevention only
4. Consent decree with formal probation
5. Traditional probation (adjudicated, extension, supervision by special person)
6. Intensive probation (tracking and monitoring)
7. In-home detention
8. Day Treatment
9. Boot Camp
10. Residential Treatment Facility
11. Toledo or the State Training School

The Court Ordered Disposition

The Court Ordered Disposition was an intervening variable, acting as both an independent variable to recidivism and as a dependent variable to the JCO’s recommendation and the risk score. The court ordered disposition scale was the same as the JCO’s recommendation scale. The lower numbers on the scale relate to lower levels of intrusiveness and the higher numbers relate to more intrusive sanctions.
and interventions. Since most of the offenders had multiple sanctions or interventions such as probation, restitution, and community service, the scores for each of the separate scores were added together for a total score.

In addition to the sanctions and interventions listed on the disposition and JCO's recommendation scale, a number of other requirements may have been part of a juvenile's disposition such as: curfew, a letter of apology, school attendance, obtaining and maintaining a part-time job, paying court appointed attorney fees, a delinquency prevention course, or a limited stay in detention. These items were not documented uniformly in the data collection sources as to their implementation and completion, however.

There were six juveniles who were waived to the adult court as a result of the seriousness of their offenses or the number of prior offenses. These individuals were deleted from the court ordered disposition scale since it was not clear where on the continuum they fit best. A waiver could have resulted in the most intrusive intervention (prison), but it may also have resulted in something less than that such as probation.

The Completion of Sanctions

The number of sanctions a juvenile received were compared to the number of sanctions completed. If none of the assigned sanctions were completed, this new variable (number of completed sanctions) was coded 0. If only one out of two or more sanctions assigned were completed, the value for such a case was coded 1. If only two out of three or more sanctions assigned were completed, the case received a 2, and likewise if only three of the sanctions originally assigned were completed out of four or more sanctions the case was given a 3. If a juvenile completed all of the sanctions assigned them they were given a 4. The sanctions only included probation, community service, consent decree, placement completed, and restitution. Other interventions and sanctions were sometimes included like counseling and other requirements, but the documentation of these items were inconsistent and did not allow for uniform data collection.
The Period of Non-Recidivism

This variable was measured by the number of days between the date of disposition and the date of re-referral to juvenile court. For those juveniles who didn't re-offend the end date would have been June, 1997. The latest disposition date was used for those few juveniles who had more than one disposition during March 19 and September 30, 1996. If an offender had been assigned a sanction that went beyond the study period they were included as successful. The period of non-recidivism was calculated slightly differently for those individuals who had turned 18 years old and were not under juvenile court supervision at the time. For these offenders, the non-recidivism period was from the date of disposition until the date that charges were filed in criminal (adult) court. It should be noted that some of the juveniles had better opportunities to recidivate than others. Those individuals who were incarcerated in a juvenile or adult institution (e.g., jail, detention, adult institution, the state training school), most likely had fewer opportunities than those who received other types of dispositions.

Hypotheses and Rationale

Twelve hypotheses have been identified pertaining to the use of risk assessment scales in a juvenile justice setting. Each of the hypotheses are identified in the theoretical model presented in Figure 4.1.

Hypothesis 1 (H1): The higher the risk score, the more intrusive the disposition. This was measured by ranking levels of dispositions and comparing them with an offender’s risk score.

Rationale: Disposition decisions are made in part based on an offender’s risk assessment score to ensure the appropriateness of the sanction and services. Offenders receiving higher risk scores are likely to have more problems (e.g., school, drugs, peer relationships), are more likely to have
Figure 4.1. Theoretical Model
committed prior crimes against people, and begin offending at earlier ages than those receiving lower risk scores. We should expect, therefore, that court dispositions will reflect this pattern of offending.

Hypothesis 2 (H2): The more intrusive the disposition, the less likely the sanction will be able to effect a reduction of frequency and intensity in subsequent delinquent behavior. This was measured by examining an offender’s disposition level and their subsequent recidivism within an eight to thirteen month period of time.

Rationale: Clients are sentenced to the more intrusive programs because of a host of problems including more serious crimes and a more extensive delinquency history. They have a longer way to go to effect a positive change in their attitudes and behaviors precisely because of this history. Even severe correctional intervention comes relatively late in the delinquent careers of most youth, and the severity of the intervention is moderated by the juvenile justice philosophy of non-intrusiveness.

Hypothesis 3 (H3): The shorter the period of time between the disposition and the re-referral to juvenile court, the higher the number of re-referrals. This is measured from the time of disposition until the date of re-referral to juvenile court.

Rationale: If someone begins engaging in activities that lead to re-referral earlier than others, it is anticipated that the interventions are having little or no affect in eliminating or reducing delinquent or criminal behavior.

Hypothesis 4 (H4): The higher the risk score, the greater the likelihood
that a juvenile will commit a new offense or a probation violation and be re-referred to juvenile court. This was measured by examining a juvenile’s risk score and the number of re-referrals to juvenile court.

Rationale: Juveniles receive higher risk scores because they have either a higher number of problems or more severe problems than those with lower risk scores, and it is these problems that place them at greater risk for committing a new offense or probation violation and being re-referred to the juvenile court.

Hypothesis 5 (H5): The lower the number of sanctions completed, the higher the likelihood of recidivism. This was measured by examining the juvenile court dispositional scale and recidivism data.

Rationale: If a juvenile did not comply with all of the requirements and sanctions imposed his or her likelihood for staying out of trouble including the likelihood of committing a probation violation or new offense and re-referral to juvenile court would be significantly increased, especially as traditional non-delinquent pathways become closed.

Hypothesis 6 (H6): The higher the risk score, the lower the likelihood the juvenile will complete court ordered sanctions. This was measured by summing the number of sanctions a juvenile completed and comparing them with an offender’s risk score.

Rationale: Juveniles with higher risk scores have a higher number of problems or more severe problems than those with lower risk scores. Such individuals were more likely to have had previous juvenile court or child welfare services which did effect a reduction in delinquent activity.
Hypothesis 7 (H7): The higher the risk score, the shorter the duration of the non-recidivism period. This was measured by examining the number of days between the imposition of a sanction and the date of re-referral and comparing this information to a juvenile's risk score.

Rationale: Assuming that the risk assessment instrument is valid, juveniles with lower risk scores are less likely to recidivate than juveniles with higher risk scores. It also seems logical that the higher a juvenile's risk score – especially if he or she perceives that there is "nothing left to lose," the sooner he or she would be re-referred to juvenile court.

Hypothesis 8 (H8): Juvenile court ordered dispositions that correspond appropriately to a juvenile offender's risk level will not affect the completion of sanctions. This is measured by the number of juvenile court ordered sanctions imposed per the juvenile court ordered disposition scale and compared to the number of sanctions completed.

Hypothesis 9 (H9): The more intrusive the juvenile court ordered disposition, the longer the non-recidivism period. This is measured by comparing the level of intervention or sanctions to the period of non-recidivism.

Rationale: The more intrusive the intervention or sanction, the less likely one will have the opportunity to recidivate. Those offenders sent to the state training school or residential treatment centers may commit offenses or activities that could get them re-referred, but in many instances such situations are handled internally.

Hypothesis 10 (H10): The juvenile court officer's recommendation will be
closely followed by the juvenile court ordered disposition. This is measured by examining the juvenile court officer’s recommendations to the juvenile court ordered disposition scale.

Rationale: The juvenile court officer has contact with the offender prior to court and receives much of the supporting documentation (e.g., police reports, school reports, victim complaints) and other information. This information is typically presented to the court and considered in making the juvenile court disposition.

Hypothesis 11 (H11): The higher the number of sanctions completed, the longer the length of the non-recidivism period. This is measured by examining the number of sanctions completed and the period of time between disposition and re-referral.

Rationale: If someone is complying with the sanctions, that in effect means that they are not engaging in activities and behaviors that would lead to re-referral. However, those juveniles who only completed 1 out of 2 or more sanctions are more likely not to value the completion or the potential consequences for non-completion.

Hypothesis 12 (H12): The higher the risk assessment score, the more intrusive and intensive the recommended disposition by the juvenile court officer to the juvenile court. This is measured by examining both the risk assessment score and the juvenile court officer’s recommendations as ranked on the disposition scale.

Rationale: The juvenile court officers utilize the risk assessment score to assist in making recommendations to the juvenile court. Juvenile court officers are usually as aware, if not more so than the court, as to what
services and interventions are available and what types of juvenile offenders they will accept. The assumption is that most juvenile court officers want a juvenile offender to receive the appropriate disposition. Of course there are often mitigating (special) circumstances that may be taken into account when making a recommendation.

Data Analysis Section

Both bivariate (i.e., frequencies, crosstabulations, Pearson’s Correlation Coefficients) and multivariate (i.e., path analysis) statistical procedures were utilized. Frequencies of relevant variables were run and are presented in the results section. Data comparing the MCR scores and other variables used to validate the dispositional risk assessment instrument were obtained and compared to the findings obtained for the original intake instrument.

Mean cost rating is also used to examine the effect that sex and race have on the predictive accuracy of the dispositional risk assessment instrument. Several options for handling the effects of these variables were tested (e.g., no adjustment, adjustment for sex, adjustment for race, adjustment for both).

Path Analysis

Path analysis is a technique that uses linear regression models to test specific theories of causal relationships among a set of variables (Agresti and Finlay, 1986). One of the primary advantages of path analysis as opposed to logistic regression is that path analysis allows for the examination of causal relationships. In cases where the causal relationship is uncertain, path analysis can be used to find the logical consequences among the variables (Pedhazur, 1982). There are three primary components to path analysis: the path diagram, the equations, and the decomposition of effects (Bollen, 1989). The path diagram is a pictorial representation of the equations that shows the relations between variables. The equations are relating correlations or covariances to the parameters that are to be
estimated by substituting sample correlations or covariances from a population to obtain parameters estimates. The third aspect, the decomposition of effects, provides direct, indirect, and total effects of one variable on another variable.

Path analysis is a method of testing causal relationships on the basis of knowledge and theoretical considerations; it is not a method for discovering causes. However, in cases in which the causal relations are uncertain, the method can be used to find the logical consequences of any particular hypothesis in regard to them (Wright, 1921). It was anticipated that the utilization of path analysis in this study would help assess the “fit” that risk assessment and recidivism have in relation with the new penology and its primary tenet that risk assessment is a valuable tool in managing offenders.
CHAPTER FIVE: RESULTS

This chapter presents the main findings of this study that were associated with the validity testing and the path analysis findings. The discussion pertaining to the validation results presents a comparison of the dispositional instrument and the intake instrument from which it was adapted. The path analysis findings describe the three models employed (i.e., the full model and two reduced models) and show that 8 out of 12 hypotheses were supported for males and 6 out of 12 hypotheses were supported for females.

Validation Results

The dispositional risk assessment instrument was borrowed from one that had originally been created for use at juvenile court intake. There were two primary concerns associated with using a risk assessment instrument at a stage of juvenile court case processing other than that for which it was intended. The first concern relates to the fact that most of the juveniles who received a juvenile court disposition potentially have higher rates of recidivism, as well as a higher propensity for the use of violence compared to those at the intake stage. It is argued that the use of an instrument at a later stage than which it was intended could affect the integrity of the instrument by not adequately accounting for the severity and chronicity of the juvenile offenders (Clear, 1988). Second, the number of juveniles who received a juvenile court disposition is lower than the number of juveniles who complete the intake stage. Therefore, we should expect that the rate of recidivism at these two stages to be different because of the selection process in juvenile court; the more serious cases are more likely to continue in the system. These two concerns pointed to the necessity to validate the dispositional instrument.

Since the dispositional risk assessment instrument was based on a previously validated instrument it seemed appropriate to compare the two scales in terms of validity scoring. In the following discussion, the original instrument is referred to as the intake instrument, while the study instrument will continue to be referred to as
the dispositional instrument.

Face Validity

In examining validity issues it seemed appropriate to examine the salient factor scores (SFS) which were used in assessing the U.S. Parole Board's risk assessment instrument (Hoffman and Beck, 1974, 1976, 1980, 1985). The salient factor score was developed as a method of categorizing risks and predicting recidivism. In viewing the SFS scores presented in Table 5.1, it should be kept in mind that the SFS scores (i.e., 0, 1, 2-4, 5-8, 9-12) correspond to the risk levels (i.e., low, medium-low, medium-high, high, and very high) developed for use with both the dispositional and intake risk assessment instruments.

Table 5.1. Salient factor scores (SFS) for the juvenile dispositional and intake risk assessment instruments

<table>
<thead>
<tr>
<th>SFS Score</th>
<th>Dispositional Number</th>
<th>Recidivism Rates</th>
<th>Intake Number</th>
<th>Recidivism Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>11</td>
<td>.27</td>
<td>387</td>
<td>.13</td>
</tr>
<tr>
<td>1</td>
<td>12</td>
<td>.42</td>
<td>299</td>
<td>.17</td>
</tr>
<tr>
<td>2-4</td>
<td>36</td>
<td>.47</td>
<td>302</td>
<td>.35</td>
</tr>
<tr>
<td>5-8</td>
<td>62</td>
<td>.67</td>
<td>171</td>
<td>.44</td>
</tr>
<tr>
<td>9-12</td>
<td>12</td>
<td>.75</td>
<td>14</td>
<td>.71</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>.57</td>
<td>1,173</td>
<td>.25</td>
</tr>
</tbody>
</table>

The recidivism rates in the highest classification (.71) for the intake instrument were 5 times higher than in the lowest classification (.13). A similar finding was found for the dispositional instrument, except that the change from the highest classification (.75) was somewhat lower (2.5 times) than the lowest classification (.27). Although the overall recidivism rates were different for the dispositional (.57) and Intake (.25) risk assessment instruments, both instruments
appeared to have face validity in that the lowest categories of risk were below the base rate of recidivism (i.e., the average recidivism rate for the sample population) and the highest categories were above it. In addition, there was an incremental increase, from the lowest to highest classifications, found among the SFS scores for both instruments. These findings tended to indicate that the risk levels did appropriately account for recidivism.

Internal Validity

To further examine the validity of the dispositional risk assessment instrument, a statistical technique referred to as “mean cost rating” (MCR) was utilized. As previously mentioned, the MCR statistic allows a researcher to evaluate predictive devices by comparing costs, in terms of false positives and false negatives, and utilities in terms of true positives and true negatives (Berkson, 1947). MCR scores vary from 0.00 to 1.00; a score of zero indicates a null prediction and a score of 1.00 indicates a perfect prediction.

The intake instrument was found to be valid using both Fischer’s general rule of thumb that risk assessments need to obtain a score of at least .250 to be statistically valid and comparisons with other validated instruments that show scores between .250 and .400 (e.g., Hoffman, 1980; Mande, 1988). When the intake instrument was designed, it was found that separate scoring by sex improved the MCR score from .354 to .364; both were significant at the .001 level. However, the data analyses did not indicate the need to make a similar adjustment for race (Huff and Prell, 1996). In examining the validity of the dispositional assessment, it seemed necessary to examine the impact of sex on the instrument, so both risk assessment instruments were examined with and without an adjustment for sex (see Tables 5.2 and 5.3).

The average or mean recidivism rates for both instruments as presented in Tables 5.2 and 5.3, are consistent with the notion that predicted recidivism will be lower at intake than at disposition. Twice as many of the juvenile offenders recidivated in the dispositional sample as recidivated in the intake sample. In
### Table 5.2. Recidivism outcomes and outcome rates for the dispositional risk assessment instrument with no adjustment for sex

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Number</th>
<th>Proportion of Total</th>
<th>Outcome Rates</th>
<th>Proportion of Total</th>
<th>Cumulative Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Favorable</td>
<td>Not Favorable</td>
<td>Favorable</td>
</tr>
<tr>
<td>Very High</td>
<td>12</td>
<td>0.090</td>
<td>3</td>
<td>9</td>
<td>25.00</td>
</tr>
<tr>
<td>High</td>
<td>62</td>
<td>0.466</td>
<td>20</td>
<td>42</td>
<td>32.26</td>
</tr>
<tr>
<td>Medium High</td>
<td>35</td>
<td>0.271</td>
<td>19</td>
<td>17</td>
<td>52.78</td>
</tr>
<tr>
<td>Medium Low</td>
<td>12</td>
<td>0.090</td>
<td>7</td>
<td>5</td>
<td>58.33</td>
</tr>
<tr>
<td>Low</td>
<td>11</td>
<td>0.083</td>
<td>8</td>
<td>3</td>
<td>72.73</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>1.000</td>
<td>57</td>
<td>76</td>
<td>42.86</td>
</tr>
</tbody>
</table>

*MCR = .308, p < .001

### Table 5.3. Recidivism outcomes and outcome rates for the intake risk assessment instrument with no adjustment for sex

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Number</th>
<th>Proportion of Total</th>
<th>Outcome Rates</th>
<th>Proportion of Total</th>
<th>Cumulative Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Favorable</td>
<td>Not Favorable</td>
<td>Favorable</td>
</tr>
<tr>
<td>Very High</td>
<td>14</td>
<td>0.012</td>
<td>4</td>
<td>10</td>
<td>28.57</td>
</tr>
<tr>
<td>High</td>
<td>184</td>
<td>0.157</td>
<td>104</td>
<td>80</td>
<td>56.52</td>
</tr>
<tr>
<td>Medium High</td>
<td>353</td>
<td>0.301</td>
<td>237</td>
<td>116</td>
<td>67.14</td>
</tr>
<tr>
<td>Medium Low</td>
<td>235</td>
<td>0.200</td>
<td>198</td>
<td>37</td>
<td>84.26</td>
</tr>
<tr>
<td>Low</td>
<td>387</td>
<td>0.330</td>
<td>336</td>
<td>51</td>
<td>88.82</td>
</tr>
<tr>
<td>Total</td>
<td>1173</td>
<td>1.000</td>
<td>879</td>
<td>294</td>
<td>74.94</td>
</tr>
</tbody>
</table>

*MCR = .354, p < .001
addition to the recidivism rates, the sample populations for both instruments show that there was indeed a smaller number of offenders who received a disposition than completed intake. As previously mentioned, the 133 offenders in this study represented the total number of juvenile offenders, from one of Iowa’s eight judicial districts, who received a disposition within a seven month period in 1996, while the total number of juveniles who completed the intake process in the same district during a one month period in 1994 was 184.

The MCR score (.308, p ≤ .001) obtained for the dispositional instrument, shows that it is statistically valid. Even though the magnitude of the MCR score for the dispositional instrument was somewhat lower than that found for the intake instrument, it was still well within the accepted range of scores. This finding tends to contradict the notion, that has become popular in the literature, that instruments designed at one stage of juvenile court case processing should not be adopted at a later stage.

It was found that when an adjustment in scoring was made for females, the MCR scores for both instruments improved (see Tables 5.4 and 5.5). In the original versions of the dispositional and intake instruments, females and males were scored the same (i.e., low = 0, medium low = 1, medium high = 2 to 4, high = 5 to 8, and very high = 9 or more). In the adjusted version of the instruments, males continued to be scored the same, but females were scored separately (low = 0, medium low = 1 to 4, medium high = 5, high = 6 to 8, very high = 9 or more).

The adjustment allows females to be classified in a more equitable manner by shifting offenders, who in actuality had lower rates of recidivism, from the higher categories of risk to the middle and lower ones. The results of this adjustment can be seen in Tables 5.6 and 5.7, which show the changes that occurred among the risk categories of the dispositional instrument for females. Even with this adjustment, the medium high and lower categories of risk still contained juvenile offenders who had recidivism rates below the base rate and the high and very high categories continued to have juvenile offenders with recidivism rates above the base
### Table 5.4. Recidivism outcomes and outcome rates for the dispositional risk assessment instrument with adjustment for sex

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Number</th>
<th>Proportion of Total</th>
<th>Outcome</th>
<th>Outcome Rates</th>
<th>Proportion of Total</th>
<th>Cumulative Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Favorable</td>
<td>Not Favorable</td>
<td>Favorable</td>
<td>Not Favorable</td>
</tr>
<tr>
<td>Very High</td>
<td>12</td>
<td>0.090</td>
<td>3</td>
<td>9</td>
<td>25.00</td>
<td>75.00</td>
</tr>
<tr>
<td>High</td>
<td>52</td>
<td>0.391</td>
<td>15</td>
<td>37</td>
<td>28.85</td>
<td>71.15</td>
</tr>
<tr>
<td>Medium</td>
<td>38</td>
<td>0.286</td>
<td>19</td>
<td>19</td>
<td>50.00</td>
<td>50.00</td>
</tr>
<tr>
<td>Low Medium</td>
<td>20</td>
<td>0.150</td>
<td>12</td>
<td>8</td>
<td>60.00</td>
<td>40.00</td>
</tr>
<tr>
<td>Low</td>
<td>11</td>
<td>0.083</td>
<td>8</td>
<td>3</td>
<td>72.73</td>
<td>27.27</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>1.000</td>
<td>57</td>
<td>76</td>
<td>42.86</td>
<td>57.14</td>
</tr>
</tbody>
</table>

*MCR = .340, p < .001

### Table 5.5. Recidivism outcomes and outcome rates for the intake risk assessment instrument with adjustment for sex

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Number</th>
<th>Proportion of Total</th>
<th>Outcome</th>
<th>Outcome Rates</th>
<th>Proportion of Total</th>
<th>Cumulative Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Favorable</td>
<td>Not Favorable</td>
<td>Favorable</td>
<td>Not Favorable</td>
</tr>
<tr>
<td>Very High</td>
<td>14</td>
<td>0.012</td>
<td>4</td>
<td>10</td>
<td>28.57</td>
<td>71.43</td>
</tr>
<tr>
<td>High</td>
<td>171</td>
<td>0.146</td>
<td>95</td>
<td>76</td>
<td>55.56</td>
<td>44.44</td>
</tr>
<tr>
<td>Medium</td>
<td>302</td>
<td>0.257</td>
<td>196</td>
<td>106</td>
<td>64.90</td>
<td>35.10</td>
</tr>
<tr>
<td>Low Medium</td>
<td>299</td>
<td>0.255</td>
<td>248</td>
<td>51</td>
<td>82.94</td>
<td>17.06</td>
</tr>
<tr>
<td>Low</td>
<td>387</td>
<td>0.330</td>
<td>336</td>
<td>51</td>
<td>86.82</td>
<td>13.18</td>
</tr>
<tr>
<td>Total</td>
<td>1173</td>
<td>1.000</td>
<td>879</td>
<td>2940</td>
<td>74.94</td>
<td>25.06</td>
</tr>
</tbody>
</table>

*MCR = .364, p < .001
rate. The two highest categories of risk had even higher rates of recidivism after the adjustment than before it had been made. These findings, along with the fact that the risk categories contain juvenile offenders whose actual recidivism increased incrementally among the levels, provides further support that the dispositional scale appropriately differentiates juvenile offenders in terms of risk.

Table 5.6. Risk levels and recidivism rates with no adjustment for sex

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Males(^a) Number</th>
<th>Recidivism Rates</th>
<th>Females(^b) Number</th>
<th>Recidivism Rates</th>
<th>Combined(^c) Number</th>
<th>Recidivism Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>9</td>
<td>33.33</td>
<td>2</td>
<td>0.00</td>
<td>11</td>
<td>27.27</td>
</tr>
<tr>
<td>Medium</td>
<td>10</td>
<td>50.00</td>
<td>2</td>
<td>0.00</td>
<td>12</td>
<td>41.66</td>
</tr>
<tr>
<td>Low</td>
<td>28</td>
<td>50.00</td>
<td>8</td>
<td>37.50</td>
<td>36</td>
<td>47.22</td>
</tr>
<tr>
<td>Medium</td>
<td>45</td>
<td>68.88</td>
<td>17</td>
<td>64.70</td>
<td>62</td>
<td>67.74</td>
</tr>
<tr>
<td>High</td>
<td>11</td>
<td>72.72</td>
<td>1</td>
<td>100.00</td>
<td>12</td>
<td>75.00</td>
</tr>
<tr>
<td>Totals</td>
<td>103</td>
<td>59.22</td>
<td>30</td>
<td>50.00</td>
<td>133</td>
<td>57.14</td>
</tr>
</tbody>
</table>

\(^a\) MCR = .264, p < .05
\(^b\) MCR = .480, p < .01
\(^c\) MCR = .308, p < .001

Since the findings indicated that separate scoring for females was more appropriate than scoring them the same as males, an examination of males scored as females was conducted to further explore the Gottfredson's (1997b) suggestion that all individuals in the sample should be treated as if they were the same (e.g., white males). However, when males were scored the same as females, the MCR score for males dropped from .264 to .243 at the .05 level of significance. This finding indicates that the adjusted version of the scale that scores males and females separately, more appropriately classifies both male and female offenders in terms of risk of recidivism than the unadjusted scale.

The findings pertaining to MCR scores indicated that the dispositional version of the risk assessment instrument offers a 34.2 percent improvement over chance in
Table 5.7. Risk levels and recidivism rates with adjustment for sex

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Males (Risk)</th>
<th>Females (Risk)</th>
<th>Combined (Risk)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>9 (33.33%)</td>
<td>2 (0.00%)</td>
<td>11 (27.27%)</td>
</tr>
<tr>
<td>Medium</td>
<td>10 (50.00%)</td>
<td>10 (30.00%)</td>
<td>20 (40.00%)</td>
</tr>
<tr>
<td>High</td>
<td>28 (50.00%)</td>
<td>10 (50.00%)</td>
<td>38 (50.00%)</td>
</tr>
<tr>
<td>Totals</td>
<td>103 (59.22%)</td>
<td>30 (50.00%)</td>
<td>133 (57.14%)</td>
</tr>
</tbody>
</table>

\[ MCR = .264, p < .05 \]
\[ MCR = .564, p < .001 \]
\[ MCR = .342, p < .001 \]

the prediction of recidivism with a sample of 133 cases, while the intake instrument offers a 36.4 percent improvement over chance in the prediction of re-referral with a sample of 1,173 cases. In addition to the MCR score, the rated accuracy of the dispositional study increased slightly for both the dispositional (66.1 percent to 67.8 percent) and the intake scales (75.7 percent to 76.1 percent).

Tables 5.8 and 5.9 show the MCR scores by race. Caution should be used in viewing these two tables, since the numbers in the cells are very small. However, there is some evidence from the recidivism findings and the validation results that race along with sex predict recidivism.

The Recidivism Model

Zero-order Pearson's correlations were obtained for all of the variables in the recidivism model. Table 5.10 presents the correlations for males and Table 5.11 presents those for females. Ten correlations were found to be significant at either the .05 or .01 level of significance for both males and females. Some of the stronger correlations that were found included correlations between the JCO's recommendations and the court ordered disposition, the risk score and the number
### Table 5.8. Risk levels and recidivism rates by race with no adjustment for sex

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Whites&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Non-Whites&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Combined&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Number</td>
<td>Rates</td>
<td>Number</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>20.00</td>
<td>1</td>
</tr>
<tr>
<td>Medium</td>
<td>11</td>
<td>45.45</td>
<td>1</td>
</tr>
<tr>
<td>Low</td>
<td>25</td>
<td>44.00</td>
<td>11</td>
</tr>
<tr>
<td>High</td>
<td>31</td>
<td>58.06</td>
<td>31</td>
</tr>
<tr>
<td>Very High</td>
<td>6</td>
<td>100.00</td>
<td>6</td>
</tr>
<tr>
<td>Totals</td>
<td>83</td>
<td>50.60</td>
<td>50</td>
</tr>
</tbody>
</table>

<sup>a</sup> MCR = .348, p < .001  
<sup>b</sup> MCR = .075, p < .001  
<sup>c</sup> MCR = .308, p < .001

The magnitude of the association between the JCO’s recommendations and the court ordered disposition for both males (.889, p ≤ .01) and females (.799, p ≤ .01) was very strong. This indicates support for the notion that the risk assessment instrument, which is known to be used by the JCO’s in making their recommendations, is also a useful device in the court’s decision making process regarding dispositions.

A significant correlation was also found between the risk score and the number of re-referrals for both males (.261, p ≤ .01) and females (.578, p ≤ .01). Although the magnitude of the association is somewhat lower for males than females, the correlations indicate that higher risk scores are related to higher numbers of re-referral for both sexes.

The correlation between the length of the non-recidivism period and the number of re-referrals was also found to be significant for both males = (-.392, p ≤ .01) and females = (-.548, p ≤ .01). This correlation suggest that the lower the number of sanctions that were completed the greater the possibility that a juvenile
Table 5.9. Risk levels and recidivism rates with adjustment for sex

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>White Males(^b)</th>
<th>Non-White Males(^c)</th>
<th>White Females(^d)</th>
<th>Non-White Females(^e)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Recidivism Rates</td>
<td>Number</td>
<td>Recidivism Rates</td>
</tr>
<tr>
<td>Low</td>
<td>8</td>
<td>25.00</td>
<td>1</td>
<td>100.00</td>
</tr>
<tr>
<td>Medium</td>
<td>9</td>
<td>55.55</td>
<td>1</td>
<td>0.00</td>
</tr>
<tr>
<td>Low</td>
<td>18</td>
<td>44.44</td>
<td>10</td>
<td>60.00</td>
</tr>
<tr>
<td>High</td>
<td>21</td>
<td>57.14</td>
<td>24</td>
<td>79.20</td>
</tr>
<tr>
<td>Very High</td>
<td>6</td>
<td>100.00</td>
<td>5</td>
<td>40.00</td>
</tr>
<tr>
<td>Totals</td>
<td>62</td>
<td>53.22</td>
<td>41</td>
<td>68.29</td>
</tr>
</tbody>
</table>

\(^a\) The combined MCR = .342, p < .05
\(^b\) MCR = .325, p < .05
\(^c\) MCR = .008, p is not significant
\(^d\) MCR = .444, p < .05
\(^e\) MCR = .778, p < .01
Table 5.10. Zero-order correlation coefficients of exogenous and endogenous variables in path model for males

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Risk score</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. JCO recommendations</td>
<td>.260**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Court ordered disposition</td>
<td>.240**</td>
<td>.889**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Period non-recidivism</td>
<td>-.328**</td>
<td>.103</td>
<td>.085</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Completion of sanctions</td>
<td>-.330**</td>
<td>.236**</td>
<td>.180*</td>
<td>.408**</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>6. Number of re-referrals</td>
<td>.261**</td>
<td>.100</td>
<td>.123</td>
<td>-.392**</td>
<td>-.318**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* Significant at .05 level
** Significant at the .01 level

Table 5.11. Zero-order correlation coefficients of exogenous and endogenous variables in path model for females

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Risk score</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. JCO recommendations</td>
<td>.471**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Court ordered disposition</td>
<td>.397*</td>
<td>.799**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Period non-recidivism</td>
<td>-.464**</td>
<td>-.400</td>
<td>-.191</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Completion of sanctions</td>
<td>-.535**</td>
<td>-.317*</td>
<td>.272*</td>
<td>.169</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>6. Number of re-referrals</td>
<td>.578**</td>
<td>.452**</td>
<td>.289*</td>
<td>-.548**</td>
<td>-.517**</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* Significant at .05 level
** Significant at the .01 level
offender will recidivate.

There was also a significant correlation found between the completion of sanctions and the number of re-referrals to juvenile court. The correlation for males (-.318, p ≤ .05) and females (-.517, p ≤ .05) indicate that the lower the number of sanctions completed the more one is likely to recidivate.

There were two correlations found to be significant for females only (JCO's recommendations and number of re-referrals = .452, p ≤ .01 and court ordered dispositions and number of re-referrals = .289 ≤ .05). The first correlation indicates that for females, the more intrusive the JCO's recommendation the greater the likelihood that a female offender was re-referred to juvenile court. The second correlation shows that not only are the JCO's recommendations positively related to re-referral, but the court ordered disposition is as well.

One correlation was found to be significant for males only, the completion of sanctions and length of non-recidivism (.408, p ≤ .01). This indicates that the higher the number of sanctions a male offender completed, the shorter their length of non-recidivism.

The Full-Model

The full recidivism model presented in Figure 5.1 contains six variables, the dependent variable (i.e., the number of re-referrals to juvenile court) and five independent variables (i.e., the risk assessment score, juvenile court officer's recommendation, the juvenile court ordered disposition, the completion of sanctions, and the length of non-recidivism). Four of these five variables (i.e., except for the risk assessment score) were considered to be intervening variables in which they served as both independent and dependent variables. The standardized regression coefficients for males are listed above the lines and the coefficients for females are listed below.
Figure 5.1. Path analysis with standardized regression coefficients for both males and females. Coefficients for males are above the lines; coefficients for females are below the lines and in the parentheses.
The Reduced Models

There were two reduced models identified, one for males (Figure 5.2) and one for females (Figure 5.3). The reduced model for males shows that 8 paths remain in the equation, which were at or below the .05 level. For females, six paths remained in the equation that were significant at or below the .01. When comparing the differences between the full model and the reduced models, the coefficients of determination for the reduced model explained slightly less for both males (full model, $R^2 = .258$; reduced model, $R^2 = .222$) and females (full model, $R^2 = .526$; reduced model $R^2 = .512$). In other words, slightly more of the variance was explained by the full model than either of the reduced ones. The variables, as they relate to the path model, are presented below and discussed in terms of each of the related hypotheses as detailed in chapter four.

Re-Referral to Juvenile Court

Recidivism in general refers to the commission of another crime; here it was defined as re-referral to juvenile court for either a new arrest or a violation of probation. If someone had not recidivated by the end of the study period they were considered to be non-recidivists. If someone was arrested, but not re-referred to court or was known to have been a part of illegal acts, but not caught, they were not considered to be recidivists.

The findings showed that recidivism was predicted by the length of the non-recidivism period (males, beta = -.311, $p < .001$ and females, beta = -.345, $p < .05$) and the completion of sanctions (males, beta = -.239, $p < .05$ and females, beta = -.321, $p < .05$). The first association suggests that the shorter the length of the non-recidivism period, the more likely a juvenile offender was to be recidivate. The full model also shows that there was no direct association between the risk score and re-referral and the juvenile court ordered disposition and re-referral. This suggests that something in combination with or other than the decisions made by the JCO's
Figure 5.2. Path analysis with standardized regression coefficients for males on recidivism, the reduced model.
Figure 5.3. Path analysis with standardized regression coefficients for females on recidivism, the reduced model.

- Significant at .05 level
- Significant at .01 level
- Significant at .001 level
and court's pertaining to disposition (i.e., length of non-recidivism and completion of sanctions) influenced a juvenile offender to commit offenses or probation violations that led to their re-referral.

Risk Score

It was hypothesized that, the higher the risk score, the more intrusive and intensive the recommended disposition by the juvenile court officer to the juvenile court. As described in the validation section of this chapter, the dispositional risk assessment instrument was found to be statistically valid. It therefore appears that this risk assessment instrument does provide utility in identifying at risk juveniles who are clearly more at risk than others.

The JCO's recommendations represents a scale of intrusiveness, but for purposes of descriptive analysis the categories were collapsed into three categories (i.e., less than probation, probation, more than probation). Less than probation was defined as community service only, restitution only or individual or family counseling only. Probation included both traditional and intensive supervision. More than probation may have included probation for those on day treatment as well as residential treatment and the state juvenile correctional facilities. Table 5.12 shows that over 54 percent of the juvenile offenders were recommended to receive a disposition of probation only, while 30.1 percent of the juveniles were recommended to receive more than probation and 15.8 percent were to receive less than probation. Table 5.13 shows that nearly 80 percent of those juveniles who were recommended for more than probation were classified as high or very high risk. This provides support that the JCOs are using the risk scores to make recommendations and that juvenile offenders at higher risk are receiving the more intrusive dispositions. However, the Table also shows that 47.6 percent of the juveniles who received less than probation were classified as high risk. The fact that just under half of the offenders who received less than probation were classified in the highest risk categories suggests that there is a need (which is beyond the scope
Table 5.12. Juvenile court officers recommendations by recidivism rates

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Number of Cases</th>
<th>Percent of Total Cases</th>
<th>Recidivism Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less Than Probation</td>
<td>21</td>
<td>15.79</td>
<td>33.33</td>
</tr>
<tr>
<td>Probation</td>
<td>72</td>
<td>54.35</td>
<td>61.11</td>
</tr>
<tr>
<td>More than Probation</td>
<td>40</td>
<td>30.08</td>
<td>62.50</td>
</tr>
</tbody>
</table>

N = 133

Table 5.13. Juvenile court officer's recommendations by risk level

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Less Than Probation</th>
<th>Probation</th>
<th>More Than Probation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Low</td>
<td>2</td>
<td>9.53</td>
<td>8</td>
</tr>
<tr>
<td>Medium Low</td>
<td>2</td>
<td>9.53</td>
<td>8</td>
</tr>
<tr>
<td>Medium High</td>
<td>7</td>
<td>33.33</td>
<td>24</td>
</tr>
<tr>
<td>High</td>
<td>10</td>
<td>47.62</td>
<td>28</td>
</tr>
<tr>
<td>Very High</td>
<td>0</td>
<td>0.00</td>
<td>4</td>
</tr>
<tr>
<td>Totals</td>
<td>21</td>
<td>100.00</td>
<td>72</td>
</tr>
</tbody>
</table>

N = 133

of this study) to further explore this issue. This would entail an examination of the special conditions, resources and philosophies that JCOs and Courts attach to decisions as well as the actual reasons why high risk offenders were recommended to receive something less than probation.

The Pearson's correlations between the risk score and the JCO's recommendation for males was .260 (p < .05) and for females was .471 (p < .01). Moreover, the path analysis indicated that there was a strong association for females and a somewhat more moderate one for males found between these two variables.

The path coefficients for the risk assessment score and the JCO's recommendations were the same as the Pearson's correlations because this was a direct relationship with no other variables leading to it and the standardized regression coefficient is equivalent to the correlation coefficient in the bivariate case.
(Pedhauzer, 1982). These findings provide support for the hypothesis that the higher the risk score, the more intrusive the JCO’s recommendation.

Another one of the hypotheses was that the higher the risk score, the more intrusive the court ordered disposition. The findings showed that 55.6 percent of juvenile offenders who were sentenced to probation only, which was the largest group, had just slightly lower recidivism rates than those juveniles who were sentenced to more than probation (see Table 5.14). Table 5.15 shows that the risk levels by type of disposition were very similar for those juvenile offenders who received less than probation and those who received probation. Juveniles who received more than probation had much higher risk levels, nearly 81 percent of the juveniles who received more than probation were in the two highest risk levels. This finding tends to support the notion that the juvenile court officers are making appropriate decisions, at least for the highest risk offenders in terms of who should receive the most intrusive dispositions. This confirms the hypothesis that the higher the risk score, the more intrusive the court disposition.

<table>
<thead>
<tr>
<th>Dispositions</th>
<th>Number of Cases</th>
<th>Percent of Total Cases</th>
<th>Recidivism Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less Than Probation</td>
<td>22</td>
<td>16.54</td>
<td>31.82</td>
</tr>
<tr>
<td>Probation</td>
<td>74</td>
<td>55.64</td>
<td>60.81</td>
</tr>
<tr>
<td>More than Probation</td>
<td>37</td>
<td>27.82</td>
<td>64.86</td>
</tr>
</tbody>
</table>

The Pearson’s correlation between risk score and the court ordered disposition was found to be significant for both males (.240, p < .01) and females (.397, p < .01). Once the variables were entered in the path model, however the estimates became statistically non-significant. This suggests that the risk assessment score had no direct impact on the juvenile court disposition decisions. There was an indirect relationship found between the risk assessment score and court ordered disposition for both males and females. In other words, the risk scores
Influenced the recommendations of the JCOs which, in turn, influenced the final court disposition.

It was hypothesized that the higher the risk score, the lower the likelihood the juvenile will complete court ordered sanctions. It was originally expected that the recidivism rate would be highest for the juvenile offenders who did not complete any sanctions, but this is not what was found. The findings actually showed that those who had completed all of the sanctions had a much higher recidivism rate than the other groups (see Table 5.16). Table 5.16 shows that just under 50 percent of the study sample completed all of the sanctions imposed by the court. Approximately 24.8 percent of the juveniles had completed some of the sanctions and 26.3 percent had not completed any of them.

**Table 5.15. The court ordered disposition by risk levels**

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Less than Probation</th>
<th></th>
<th>Probation</th>
<th></th>
<th>More Than Probation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
</tr>
<tr>
<td>Low</td>
<td>2</td>
<td>9.09</td>
<td>8</td>
<td>10.81</td>
<td>1</td>
<td>2.71</td>
</tr>
<tr>
<td>Medium Low</td>
<td>2</td>
<td>9.09</td>
<td>8</td>
<td>10.81</td>
<td>2</td>
<td>5.41</td>
</tr>
<tr>
<td>Medium High</td>
<td>8</td>
<td>36.36</td>
<td>24</td>
<td>32.43</td>
<td>4</td>
<td>10.81</td>
</tr>
<tr>
<td>High</td>
<td>10</td>
<td>45.45</td>
<td>30</td>
<td>40.54</td>
<td>22</td>
<td>59.46</td>
</tr>
<tr>
<td>Very High</td>
<td>0</td>
<td>0.00</td>
<td>4</td>
<td>5.41</td>
<td>8</td>
<td>21.62</td>
</tr>
<tr>
<td>Totals</td>
<td>22</td>
<td>100.00</td>
<td>74</td>
<td>100.00</td>
<td>37</td>
<td>100.00</td>
</tr>
</tbody>
</table>

aN = 133

**Table 5.16. Number of sanctions completed by recidivism rates**

<table>
<thead>
<tr>
<th>Sanctions</th>
<th>Number of Cases</th>
<th>Percent of Total Cases</th>
<th>Recidivism Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Completed</td>
<td>65</td>
<td>48.87</td>
<td>76.92</td>
</tr>
<tr>
<td>Some Completed</td>
<td>33</td>
<td>24.81</td>
<td>54.54</td>
</tr>
<tr>
<td>None Completed</td>
<td>35</td>
<td>26.32</td>
<td>22.86</td>
</tr>
</tbody>
</table>

aN = 133
To further explore this surprising finding, a crosstabulation between completion and risk level was constructed. Table 5.17 shows that 55.4 percent of those juvenile offenders who had completed all of the sanctions were classified as high risk and 13.8 percent as very high risk, while the percent of those juveniles who had not completed all of their sanctions were classified as lower risks, at least in the two highest risk categories (high risk = 22.9 percent; very high = 2.9 percent). This indicates that those juveniles who did not complete all of the court imposed sanctions were in actuality lower risks than those who did complete some or all of the sanctions, suggesting again that the higher risk juveniles were more likely to recidivate.

The correlations between risk score and completion of sanctions was significant for both sexes (males = -.330, p < .01 and females = -.535, p < .01). This finding suggests that the higher the risk score, the more likely the person will complete the sanctions. The path findings showed a similar finding for both males and females. It is possible that deterrence is at work here; those with more to lose (e.g., higher risks) may have been more likely to complete their sanctions because of a fear of receiving even harsher sanctions in the future. This argument only goes so far, however, when it is considered that those with the higher risk scores have much higher recidivism rates. This findings does not support the hypothesis.

It was hypothesized that the higher the risk score, the shorter the non-

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>All Sanctions Completed</th>
<th>Some Sanctions Completed</th>
<th>No Sanctions Completed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Low</td>
<td>2</td>
<td>3.08</td>
<td>1</td>
</tr>
<tr>
<td>Medium Low</td>
<td>3</td>
<td>4.62</td>
<td>4</td>
</tr>
<tr>
<td>Medium High</td>
<td>15</td>
<td>23.08</td>
<td>8</td>
</tr>
<tr>
<td>High</td>
<td>36</td>
<td>55.38</td>
<td>18</td>
</tr>
<tr>
<td>Very High</td>
<td>9</td>
<td>13.85</td>
<td>2</td>
</tr>
<tr>
<td>Totals</td>
<td>65</td>
<td>100.00</td>
<td>33</td>
</tr>
</tbody>
</table>

* N = 133
recidivism period. This indicates that there is a significant, positive association between higher risk scores and lower non-recidivism periods. The correlation between the risk score and the non-recidivism period indicated negative correlations for both sexes ( -0.328 for males and -0.464 for females, p < 0.01). The path coefficients revealed a significant association between the risk score and non-recidivism for both males (beta = -0.289, p < 0.01) and for females (beta = -0.417, p < 0.05). This finding indicates support for the hypothesis that juveniles with higher risk scores are more likely to recidivate than those with lower scores.

It was hypothesized that the higher the risk score, the greater the likelihood that a juvenile will commit a new offense or a probation violation and be re-referred to juvenile court. The findings indicate that there was no direct association between a juvenile's risk score and whether or not they were re-referred to court. Therefore, the hypothesis failed to be supported.

The correlation between the risk score and re-referral was significant for both sexes ( males = 0.261, p < 0.01 and females = 0.578 p < 0.01). The path analysis, however, showed that neither coefficient was significant in the model and no direct association between risk assessment score and number of re-referrals was found. There was, however, an indirect effect for both sexes. For males, the indirect effect was through the completion of sanctions and the non-recidivism period, and the JCO recommendations and the juvenile court ordered disposition. For the females, the indirect effect was through the completion of sanctions and the non-recidivism period.

Juvenile Court Officers' Recommendations

It was hypothesized that there is a significant, positive relationship between the juvenile court officer's recommendations and the juvenile court ordered disposition. The findings support the notion that the juvenile court relies heavily on the recommendation of the JCOs. The correlation between the JCO's recommendations and the juvenile court ordered disposition was extremely high for
both sexes (males = .889, p ≤ .01 and females = .799, p ≤ .01). In the path analysis, it was found that the juvenile court ordered disposition was significantly predicted by the juvenile court officer's recommendation for males (beta = .867, p ≤ .001) and for females (beta = .798, p ≤ .001). There was, however, no direct path from the court ordered disposition to re-referral for either sex, suggesting that something other than the intrusiveness of the court disposition is directly responsible for re-referral. There was an indirect relationship for males through the completion of sanctions and length on non-recidivism. This suggest that, at least for males, the level of intrusiveness of the court ordered disposition is to some extent related to the likelihood of re-referral.

Juvenile Court Ordered Disposition

The hypothesis that juvenile court ordered dispositions will not affect the completion of sanctions was examined. The finding pertaining to this hypothesis showed that the more intrusive the court ordered disposition, the more likely a juvenile offender was to fail to complete all of the court ordered sanctions. This finding, therefore did not provide support for the hypothesis.

A Pearson's correlation between the juvenile court ordered disposition and the completion of sanctions found significant associations between the juvenile court ordered disposition and the completion of sanctions for both sexes (males = .180, p ≤ .05 and for females = .272, p ≤ .05). The path analysis found that the completion of sanctions was significantly predicted by the juvenile court ordered disposition (beta = .191, p ≤ .05) for males, but not for females.

It was hypothesized that the more intrusive the court ordered disposition, the less likely the sanction will be able to effect a reduction of frequency and intensity in subsequent delinquent behavior. The findings fail to provide support for this hypotheses except that there was an indirect effect found for males through the completion of sanctions and the length non-recidivism. The correlation for the court ordered disposition and the number of re-referrals was not significant for males, but
was found significant for females (.289, p < .05). However, the path analysis indicated that no direct paths existed between the juvenile court order and re-referral for either sex.

Completion of Sanctions

The lower the number of sanctions completed, the higher the likelihood of recidivism. The findings provide support for this hypothesis by showing that this was the case for both males and females. As previously mentioned, juvenile offenders who had completed all of the sanctions imposed upon them by the court had somewhat higher risks of recidivism than those who did not complete all of the sanctions.

The Pearson's Correlation between the number of sanctions completed and re-referral was significant for both sexes (males = -.318, p < .01 and females = -.517, p < .01). This finding indicated that higher the number of sanctions completed, the higher the likelihood of re-referral. The path analysis indicated that there was a significant association for both males (beta = -.239, p < .05) and females (beta = -.321, p < .05). To explore whether this finding was due to the dispositions one received, an examination of dispositions wherein those who completed none of their sanctions was undertaken. It was speculated that the juvenile offenders with the highest risks received the most intrusive dispositions (e.g., the state training school) and as such had a limited opportunity to recidivate. However, the findings indicated that only 6 of the juvenile offenders who had not completed any sanctions received a disposition more intrusive than probation (e.g., boot camp, residential treatment, the state training school). Further exploration of this association would need to be conducted in order to speculate why the negative coefficients were found between these two variables.

Another hypothesis that was examined was, the higher the number of sanctions completed, the longer the length of the non-recidivism period. The findings indicated that this hypothesis was supported for males only. The Pearson's
correlations between the number of sanctions completed and the length of the non-recidivism period was significant for males (r = .408, p < .01), but not for females. Similar to the correlation findings, the path analysis indicated an association for males (beta = .236, p < .01) but not for females. For males, this implies that lower rates of completion of sanctions do positively affect the length of non-recidivism. Conversely, the completion of sanctions was not considered an issue in relation to the length of non-recidivism for females.

Length of Non-Recidivism

The shorter the period of time between the disposition and the re-referral to juvenile court, the higher the number of re-referrals. The findings tend to support this hypothesis by showing that offenders with shorter lengths of non-recidivism did tend to have higher recidivism rates. By definition, those juvenile offenders who recidivated in under 6 months from the time of disposition had recidivism rates of 100.0 percent (see Table 5.18). Not surprisingly, juveniles who made it past 6 months had a much lower percentage of recidivating (24.7 percent).

<table>
<thead>
<tr>
<th>Non-recidivism Period</th>
<th>Number of cases</th>
<th>Percent of Total</th>
<th>Recidivism Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 Days or Less</td>
<td>23</td>
<td>17.29</td>
<td>100.00</td>
</tr>
<tr>
<td>31 - 60 Days</td>
<td>11</td>
<td>8.27</td>
<td>100.00</td>
</tr>
<tr>
<td>61 - 90 Days</td>
<td>10</td>
<td>7.52</td>
<td>100.00</td>
</tr>
<tr>
<td>91 - 110 Days</td>
<td>6</td>
<td>4.51</td>
<td>100.00</td>
</tr>
<tr>
<td>111 - 140 Days</td>
<td>6</td>
<td>4.51</td>
<td>100.00</td>
</tr>
<tr>
<td>141 - 170 Days</td>
<td>4</td>
<td>3.01</td>
<td>100.00</td>
</tr>
<tr>
<td>171 or More</td>
<td>73</td>
<td>54.89</td>
<td>24.66</td>
</tr>
</tbody>
</table>

* N = 133
The Pearson's correlation between the non-recidivism period and re-referral indicated a positive association for both sexes (males = -.392, \( p \leq .01 \) and females = -.548, \( p \leq .01 \)). This finding suggests that the lower the non-recidivism period the higher the number of re-referrals. The path analysis reinforced this finding by indicating a significant association between the length of non-recidivism and the number of re-referrals to juvenile court for males (beta = -.311, \( p \leq .001 \)) and for females (beta = -.345, \( p \leq .05 \)).
CHAPTER SIX: CONCLUSIONS

This chapter presents a discussion of the major findings from the study. The major findings are framed around the validation testing and the path analysis.

Validation

There were two major findings pertaining to the validation testing of the dispositional risk assessment instrument obtained from the data. First, the dispositional risk assessment instrument was found to be valid within the currently accepted parameters. The mean cost rating (MCR) score for the adjusted version of the dispositional risk assessment instrument was .342, which was well above Fisher's standard (Fischer, 1985) of .250 and within the range of accepted scores (.250 to .400) from other research (Hoffman, 1980 and Mande, 1988).

The dispositional risk assessment instrument was found to provide a useful and empirically valid way of categorizing offenders to both the JCOs and the juvenile court in making decisions pertaining to an offender’s disposition or sentence. This finding is consistent with the notion that risk assessment is an important tool of the “the new penology.” Although a comparison of clinical and actuarial decisions was beyond the scope of this study, the findings from this study along with impressionistic information from the Chief JCO indicates that the dispositional risk assessment instrument provides the JCOs with a tool that allows for a more efficient and effective handling of offenders than previously available. The ongoing use of such an instrument may allow juvenile justice officials, researchers, policy makers and others the ability to systematically document, track and evaluate the JCO's decision making process (i.e., the match between offenders and dispositions). This may prove to be especially useful as states and local jurisdictions continue to develop and implement ways of providing the most intrusive (and often most expensive) interventions and services only to the most appropriate juvenile offenders (e.g., highest risk).

Concern about adopting a risk assessment instrument at a stage of the
juvenile court case processing other than it was originally intended was found to be unwarranted. The larger volume of offenders, along with the greater range of types of offenders at the intake stage, allowed the instrument to maintain integrity at a later stage of court processing. It is also possible that other risk items not included in this study could enhance the MCR scores at the dispositional stage even further, however this determination is beyond the scope of this study. Further study would also be needed to determine whether an instrument developed for use at a later stage and then implemented at the “front end” could be still be valid. It is possible that the ability to go from an earlier stage to a later stage may not be valid when the process is reversed (i.e., going from a later stage to an earlier stage).

Along with the concern by researchers (Clear, 1988) that risk assessment instruments are not transferable among the various juvenile court case processing stages, is the warning not to adopt another jurisdictions’ instrument without first accounting for local policies and practices. However, this concern was not considered to be an issue in this study, since the judicial district under study was part of the original design process during the development, testing, and validation phases of the intake risk assessment. In other words, the practices and policies of this district were accounted for when the original validation was completed.

The second major finding pertaining to the validation of the dispositional risk assessment instrument was that the MCR score improved from .308 to .342 when an adjustment for sex was made. This finding indicates that it is better to have separate scoring for males and females.

Gottfredson and Gottfredson (1997b) argued that the best way of “meliorating the effect of invidious factors” was to leave the variables in since they are typically highly correlated with the other factors in the scale and treat all of the subjects the same. This part of their argument, to leave “invidious variables” (e.g., race and sex) in the model, seems to be supported by the finding in this study that the MCR scores improved when an adjustment for sex was made. However, the finding that separate scoring for males and females improved MCR scores, contradicts Gottfredson and Gottfredson’s (1997b) suggestion that researchers should treat all
subjects in the sample as if they were the same (e.g., white males).

Path Analysis

Path analysis revealed that the reduced models explain just slightly less amounts of variance than the full model. But since the completion of sanctions and length of non-recidivism accounted for much of this variance for both sexes, after the non-significant paths were eliminated from the full model, it appears the reduced models are at least as good as the full model in explaining impact that risk assessment has upon re-referral to juvenile court.

Both similarities and differences were found among the male and female offenders in terms of the recidivism model that was presented in the path analysis section. In most cases the coefficients were fairly similar in magnitude for males and females. One exception to this was found between the risk assessment score and the juvenile court officer's recommendation. One possible explanation of why female offenders had a stronger association between these two variables than males may have been simply a result of the fact that they comprised a small percent (22.6 percent) of the sample. It may also have been possible that JCO's recommendations are more strictly applied for females than males (e.g., higher scores for females result in more intrusive dispositions with less of the females getting "breaks" due to special conditions).

Another association found to vary somewhat in magnitude was found between the risk assessment score and length of non-recidivism. The negative coefficients that were found indicate that offenders with higher risk scores had shorter lengths of non-recidivism.

One similarity was that the risk assessment score did not have a direct association with the number of re-referrals to juvenile court. Another similarity was that juvenile court ordered disposition was not directly associated with the number of re-referrals. However, significant associations were found between the completion of sanctions and re-referral (males, beta = -.318, p < .01 and females, beta = -.517, p < .01) and the length of non-recidivism and re-referral (males, beta = -.311, p <
The negative coefficients that were found between the completion of sanctions and re-referral suggest that those offenders who had completed all of the court imposed sanctions had higher recidivism rates than those who had only completed some or none of the sanctions. One apparent reason for this surprising finding was that those who completed all of the sanctions imposed upon them by the juvenile court, in actuality, had higher risk scores than those who did not complete all of the sanctions. The coefficients for the path between the length of non-recidivism and re-referral indicate support for the hypothesis that a shorter length of non-recidivism resulted in multiple re-referrals.

Two major differences were found in regards to the prediction of re-referral by sex; (1) there was no direct relation between completion of sanctions and the length of non-recidivism for females and (2) there was no indirect effect between the juvenile court disposition and re-referral for the females. Therefore, it is concluded that completion of sanctions did have some effect upon the males in terms how of soon they recidivated after they received their disposition, but none for the females. This finding supports the notion found in the literature that the treatment and interventions specifically designed for delinquent females is lacking, by showing that the completion of sanctions (or not) has little if any impact on how soon females re-offend after receiving a court ordered disposition.

The fact that no significant association was found for females and males between the juvenile court order and re-referral indicates that the impact that the court's disposition has upon females in terms of re-referral is non-existent. For males, the number of re-referrals to juvenile court was related to the juvenile court disposition, but only in association with two other variables, the completion of sanctions and the length of non-recidivism.

The significant, positive associations found between the risk assessment score and the JCO's recommendations, and the JCO's recommendations and the court ordered disposition, show that the risk instrument was utilized by both the JCOs and the court in making decisions regarding offenders' dispositions. The findings also indicate that the risk instrument appears to be useful in providing a
mechanism that assists in the distribution of the most intrusive dispositions to the highest risk offenders.
APPENDIX A: RISK ASSESSMENT TEST INSTRUMENT
RISK ASSESSMENT TEST INSTRUMENT
Worker________________________  County______________________________

District____  Date of Interview_____/_____/____ Client Name__________________________

Date of Birth_____/_____/____ Sex____ Race____ Crime(s) _______________________

1. Current Offense Type (check one): Crime Against Persons [ ] Crimes Not Against Persons [ ]

2. Number of Current Offense(s) (indicate number of each): Felony____
   Aggravated Misdemeanor____ Serious Misdemeanor____ Simple Misdemeanor____

3. Age at First Arrest:____

4. Prior Arrests/Adjudications (indicate number of each):

<table>
<thead>
<tr>
<th>Felony</th>
<th>Arrests</th>
<th>Adjudications</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>Aggravated</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>Misdemeanor</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>Serious Misdemeanor</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>Simple Misdemeanor</td>
<td>______</td>
<td>______</td>
</tr>
</tbody>
</table>

5. Prior Crimes Against Persons: Yes [ ] No [ ]

6. Supervision History (check one): None [ ] Re-offended after previous supervision ended [ ] Re-offended during current supervision [ ]

7. Service History (check All that apply):

   [ ] None  [ ] Inpatient Evaluation  [ ] Mental Health Commitment
   [ ] In-Home/ Community Based  [ ] Residential  [ ] Training School/ Locked Facility
   [ ] Shelter/Foster Care  [ ] Waived to Adult Court
8. Substance Use/Abuse (check one response in each column):

<table>
<thead>
<tr>
<th>Alcohol</th>
<th>Drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Evidence of use/abuse</td>
<td></td>
</tr>
<tr>
<td>Experimentation</td>
<td></td>
</tr>
<tr>
<td>Frequent use/abuse</td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
</tr>
</tbody>
</table>

9. Runaways (check one response in each column):

<table>
<thead>
<tr>
<th>From Home</th>
<th>From Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Few runs</td>
<td></td>
</tr>
<tr>
<td>Frequent runs (&lt;3 days)</td>
<td></td>
</tr>
<tr>
<td>Frequent runs (&gt;3 days)</td>
<td></td>
</tr>
</tbody>
</table>

10. Peer Relationships (check one): Seeks and provide good support/influence on peers [ ] Fails to avoid negative influences [ ] identifies with others who exhibit strong anti-social behavior [ ]

11. Gang Affiliation (check one): None [ ] Peripheral [ ] Full-Involvement [ ]

12. Attitude (check one): Motivated to change/accepts responsibility [ ] Uncooperative/defensive [ ] Depressed [ ] Negative/defiant/not motivated to change [ ]

13. Level of Parental Control (check one): Appropriate parental control [ ] Parental control problems [ ]

14. Current School (check one): Regular [ ] Special Education [ ] Alternative [ ] None [ ]

15. School Status (check one): Attending Regularly/Graduated/GED [ ] Not Participating/Attending [ ] Dropped Out/Expelled [ ]

16. School Discipline Problems: None [ ] Minor [ ] Moderate [ ] Severe [ ]

17. Truancy: None [ ] Occasional [ ] Frequent [ ]

18. School Suspensions: None [ ] Once [ ] 2 or 3 [ ] 4 or more time [ ]

19. Youth Currently Employed Yes [ ] No [ ]
20. Family History (check all that apply): None [ ] Physical Abuse of Youth [ ]
Sexual Abuse of Youth [ ] Neglect of Youth [ ] Parent/Sibling Alcohol Abuse [ ] Parent/Sibling Drug Abuse [ ] Parent/Sibling Criminal History [ ]
APPENDIX B: IOWA JUVENILE COURT INTAKE RISK ASSESSMENT
IOWA JUVENILE COURT INTAKE RISK ASSESSMENT

Client Name/ID ___________________ Sex ___ Intake Date ___/___/_____  
Offenses This Referral ____________________________________________

STEP 1: COMPLETE ITEMS 1-4

1. NUMBER OF CURRENT FELONIES (this referral)
   None or one............................................................................ 0
   Two....................................................................................... 2
   Three or more......................................................................... 3

2. PRIOR CRIMES AGAINST PERSONS
   No....................................................................................... 0
   Yes..................................................................................... 3

3. PEER RELATIONSHIPS
   Seeks and provides good support and influence on peers........... 0
   Fails to avoid negative influences......................................... 1
   Identifies with others who exhibit strong anti-social behavior.... 2

4. SCHOOL SUSPENSIONS (out-of-school within the past 12 months)
   None or one.......................................................................... 0
   Two or more......................................................................... 2

STEP 2: ADD ITEMS 1-4 AND ENTER RESULT HERE............................. ____

IF SUBTOTAL ABOVE EQUALS ZERO, YOU ARE DONE.

IF SUBTOTAL ABOVE IS GREATER THAN ZERO, COMPLETE A-D:

A. AGE AT FIRST ARREST
   12 or older........................................................................... 0
   11 or younger......................................................................... 1

B. DRUG USE/ABUSE (do not count alcohol)
   No or unknown...................................................................... 0
   Yes..................................................................................... 1

C. ADD SUBTOTAL SCORE WITH ITEM A AND B
   FOR STEP 2 SCORE................................................................ ____
D. DETERMINE RISK LEVEL (circle appropriate category below)

<table>
<thead>
<tr>
<th>Step 2 Score</th>
<th>Risk Level</th>
<th>Step 2 Score</th>
<th>Risk Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Medium Low</td>
<td>1-4</td>
<td>Medium Low</td>
</tr>
<tr>
<td>2-4</td>
<td>Medium High</td>
<td>5</td>
<td>Medium High</td>
</tr>
<tr>
<td>5-8</td>
<td>High</td>
<td>6-8</td>
<td>High</td>
</tr>
<tr>
<td>9+</td>
<td>Very High</td>
<td>9+</td>
<td>Very High</td>
</tr>
</tbody>
</table>

Preferred Recommendations*:

Actual Recommendations*:

Reasons for Differing from Disposition Guidelines*: Disposition Ordered by the Court*:
These were additions made by the Chief JCO in the 7th judicial district
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