LORI E. STOWERS WRIGHT
A Behavioral Cluster Analysis of Male Juvenile Offenders
(Under the direction of Brian A. Glaser, Ph.D.)

The present study hypothesized that a cluster analysis of the index scores on the Behavior Assessment System for Children self-report profiles would derive clusters of different subtypes of male juvenile offenders in terms of adaptive and maladaptive skills. An examination of the relationship between demographics, number and type of offenses to cluster types will also be discussed. Social Learning theory was used as the theoretical framework. Developmental issues were discussed in terms of the social cognitive mechanisms involved in the development of disorders of conduct. The study sample included 385 Georgia male juvenile offenders ages 12-17. There were three clusters found after using a clustering method involving a two-step procedure: a Ward hierarchical analysis followed by an iterative cluster partitioning via a K-means analysis. This study will add to research in the area of juvenile offenders and the nature of juvenile delinquency.

INDEX WORDS:    Juvenile Offender, Adolescent, BASC, Social Learning,
                and Cluster Analysis.

A BEHAVIORAL CLUSTER ANALYSIS OF MALE JUVENILE

OFFENDERS


by


LORI E. STOWERS WRIGHT


B.S., American College of Switzerland, 1987

M.S., Georgia State University, 1996


A Dissertation Submitted to the Graduate Faculty

of The University of Georgia in Partial Fulfillment

of the

Requirements for the Degree


DOCTOR OF PHILOSOPHY



ATHENS, GEORGIA

2000

A BEHAVIORAL CLUSTER ANALYSIS OF MALE JUVENILE

OFFENDERS


by


LORI E. STOWERS WRIGHT




Approved:


Major Professor:     Brian A. Glaser, Ph.D.


Committee:  Georgia B. Calhoun, Ph.D
            Arthur M. Horne, Ph.D.
            Linda F. Campbell, Ph.D.
            Randy W. Kamphaus, Ed.D.




Electronic Version Approved:

Gordon L. Patel
Dean of the Graduate School
The University of Georgia
May 2000

DEDICATION

This work is dedicated to my mother Glenna Stowers Carlton, father stand-in Jan Jonker, sister, Natalie, niece, Djuna, extended family, Marjorie, Lisa, Kelly, Chase, uncle, Mark Wright, husband, Tom Wright, animal menagerie, and to my daughter, Erin Stein-Wright. All of these humans and animals have taught me the true meaning of love and support. You have encouraged me to dream and conquer my goals. Your love has provided me the foundation that has provided stability in the most turbulent of times. Thank you for taking part in my journey.

# ACKNOWLEDGEMENTS

TABLE OF CONTENTS

# LIST OF FIGURES AND TABLES

CHAPTER 1

INTRODUCTION

"....until the mind can love, and admire, and
trust, and hope, and endure, reasoned principles of
moral conduct are seeds cast upon the highway of life
which the unconscious passenger tramples into dust,
although they would bear harvest of this happiness."
Shelley, Preface to *Prometheus Unbound.*


In the fifth century AD, the age was fixed at seven for determining

whether youths would be exempted from criminal responsibility (Wakefield &

Hirschel, 1996). Radzinowicz (1948) believes a sad page in the history of

English juvenile justice was that there were 160 to 200 capital offenses listed

in the statutes for which children could be executed. Although many juveniles

sentenced to die were later pardoned or transported to another country, some

children were executed. Eighteen of the twenty people executed in London in

1785 were under the age of 18 (Radzinowicz, 1948). The executions of

children in England continued but became rarer in the 1800s. The history of

juvenile justice in America began in the colonial period. The family, the

cornerstone of the community in colonial times, was the primary means of

social control of children. Juvenile lawbreakers did not face a battery of

police, probation, or aftercare officers, nor did they worry that the

practitioners of the juvenile justice system would try to rehabilitate them.

They only had to concern themselves with being sent back to their families

for punishment (Rothman, 1971).

The development of a juvenile justice system in America is a relatively

new phenomenon. The notion of a "juvenile delinquent" as distinct from an

adult criminal in terms of intent, responsibility, and the response taken by

the justice system, is innately tied to the modern conception of "childhood"

and "adolescence" as developmental stages of life distinct from adulthood

(Flowers, 1990). It was in the 19th century that certain philanthropic groups,

supported by the general reform movement, began to attribute the problems

of American society to rapid industrialization and urbanization. The

reformers decided that action must be taken to save the children of the lower

classes and slums, who often labored in factories, sweatshops, and mines,

where ample, cheap, unskilled labor was in demand. Reformers regarded the

conditions of these slums and workplaces as largely responsible for juvenile

crime, delinquency, and the general "immoral" behavior of lower class youth

(Flowers, 1990). In an effort to offset these debasing conditions, backers of

the child-saving movement began to look at treatment of juvenile offenders.

At the time, juvenile offenders came before the same courts as adult

criminals and received the same dispositions, including sharing incarceration

facilities. These same reformers played an important role in pressuring state

legislators to establish hearings and detention facilities for juveniles separate

from those of adults, and eventually to create juvenile courts.

Currently, one of the most important centerpieces of the juvenile justice system is the juvenile court. Near the turn of the century, a number of American cities began establishing special courts and procedures for juveniles. The first formally created juvenile court was established in Cook County (Chicago), Illinois, in 1899 by the Illinois Juvenile Court Act. Another important development was the establishment of detention facilities for the juvenile offender. A Children's Protective Society Shelter was established in Boston in 1880, and the first detention facility connected with the juvenile court was privately established in Chicago soon after (Bloch, 1956).

Adolescents.

Many authors have written about adolescents, i.e., Dodge (1993b), Henggeler (1989), Kazdin (1995), and Patterson, DeBaryshe, & Ramsey (1989). Adolescence is generally defined as the period between ages twelve and eighteen. The period of adolescence is exciting and creative, yet it can be tumultuous and volatile. There are a considerable number of developmental hurdles that can challenge the emotional and physical stability of both the adolescents themselves and those in charge of their care, i.e., their family and community. Tasks that must be confronted include acceptance of bodily changes, responsible sexuality, and coping with separations such as leaving home and adulthood. Additional areas include a potential conflict are a strong desire for group acceptance and subsequent peer pressures, initial exposure to drugs and alcohol, and concerns about school achievement. Concomitantly, changes in the family structure (i.e., death, divorce, or

remarriage) can have an enormous impact on an adolescent's successful transition into adulthood, as can other familial circumstances such as socioeconomic status or frequent moves to different localities (Oster, Caro, Eagen, & Lillo, 1988). Peers have enormous influence over adolescents, and juveniles' behaviors are frequently dictated by whether their peer groups are involved in drugs, gangs, or other forms of antisocial behavior.

Adolescence is a developmental period in which the individual is moving towards forming a new and separate identity. Two processes that mark the task of identity formation during this period are individuating and gaining autonomy (Josselson, 1990). Healthy narcissism aids an adolescent in this task as her/his sense of self becomes more internally defined (Cramer, 1995). In healthy environments, children are provided with support and models that teach them to operate in reality. Some children, however, become grounded in an early false sense of omnipotence and the disassociation of vulnerability. This false sense of omnipotence and dissociation of vulnerability can lead to difficulties in adolescence. The inability to achieve real competence or effectiveness in an area intensifies the adolescent's need to claim omnipotence and produce more extreme grandiosity. The devaluation of others thereby becomes a means of protecting oneself from vulnerability and humiliation (Bleiberg, 1994).

Erikson (1968) viewed adolescence from the developmental perspective of a normative crisis. According to Erikson's theory of psychosocial development, an adolescent is any person, usually between the ages of 10 and

18, who has clearly started the search for a personal identity. In this process, the person examines many of the philosophical, psychological, social, and physical options that are available. The adolescent tries out numerous self-images and behaviors and accepts or rejects each of them. He further believed that an individual who has successfully achieved the goals of adolescence only when she or he is able to engage in a truly intimate relationship with another. Additionally, there needs to be a sense of individual self-acceptance for the developmental stage of adolescence to end. During this period of the life cycle, there seem to be dramatic fluctuations in the adolescent's ego strength. The primary resolution of this stage is what Erikson called identity formation. Many of the major influencing factors involve psychosocial stress between the development of the self and social constraints.

<u>Social Cognitive Theory</u>

Social cognitive theory has its roots in Bandura's social learning theory (e.g., Bandura, 1977, 1986, 1989). Social learning theory stresses the importance of learning experiences and examines how learning shapes the notion of a self-concept. Bandura's social learning theory (1986) focused on reciprocal determinism, the idea that personal influences, environmental factors, and overt behaviors have separate but interactional causal relationships. Bandura referred to these relationships as triadic causality. The social learning framework provides a theory of personality development that emphasizes the importance of learned experiences, either operant

(reinforcement), associative (combining one stimulus with another) or vicarious (through models).

Bandura (c.f., Grusec, 1992) maintained that cognition involves both knowledge and the skills for acting on that knowledge. He believed the development of thinking was guided by specialized cognitive capacities that change over time as a function of maturation and experience. These cognitive capacities or skills involve a number of domains. One such domain is attention. The ability to attend to relevant parts of the environment is essential for children to begin to see connections between or to acquire information about relationships between actions and outcomes. Children must also transform observed material into symbolic form, first by imaginable symbols, then later through verbal symbols as language develops. Memory is another important cognitive skill, enabling information about observed and personally experienced events to be retained so that it can guide the formulation of rules. The ability to monitor the match between ideas about relationships between actions and outcomes and the actual effects of actions, as well as to correct mismatches, is yet another cognitive skill important for successful behavioral functioning. Finally, children's reasoning skills must be refined so they can make and apply decision rules for governing behavior.

The social cognitive approach finds the sources of change in maturation, exploratory experiences, and most important, the imparting of information by social agents in the form of guided instruction and modeling.

As the child's social reality expands and as the potential seriousness of possible transgressions increases with age, moral standards of a more complex and generalized nature are introduced. For example, running away when the youth is feeling misunderstood by their parents has different ramifications when they are five (hiding in their neighbor's backyard) than when they are sixteen (hiding in an abandoned downtown building). Social cognitive theory examines self-efficacy as well as learning and maladaptive behavior.

Social cognitive theory (c.f., Dodge, 1993) also utilizes an information-processing model to describe both the cognitive tasks of perception and problem solving and the emotional tasks of integrating cognitive information with one's goals, motivational state, and arousal regulation. According to the information-processing model of social cognitive theory, a person's behavioral response to a situational stimulus (such as rejection or provocation by a peer) occurs as a function of a sequence of processing steps. This sequence is conceptualized as an ongoing, repetitive process that occurs during ongoing social interactions, in either conscious or unconscious ways. Social-information processing theory can be extended to explain general patterns of delinquent behavior in children and adolescents and general child psychopathology. The logic is that if a processing action (such as attributing hostile intent) is correlated with delinquent behavior (such as an aggressive act), then a general processing tendency (a bias to attribute hostile intentions) will be correlated with a general behavioral tendency (disorders of

conduct). Likewise, if specific attributions (of helplessness and hopelessness) lead to specific symptom responses (of cortisol secretions and listlessness), then a general processing tendency (to attribute negative stimuli in helpless and hopeless ways) will be correlated with psychopathology (depression).

Of the 28 million adolescents in the United States, one in four is at risk for engaging in socially unacceptable behaviors (Dryfoos, 1990). These behaviors include abusing alcohol and drugs, committing delinquent acts, failing academically or dropping out of school, and practicing early unprotected intercourse. More recently, Dryfoos (1997) has suggested that 50% of youth engage in at least two or more risky behaviors. Recent statistics from the U.S. Department of Justice indicate approximately two million children and adolescents in the United States were involved in the juvenile court system in 1996 (c.f., Calhoun, Glaser, & Bartolomucci, 1998).

Frequently, delinquency reports will focus on the prevalence of male delinquency. While the increasing presence of female juvenile offending cannot be ignored, males account for 85 percent of violent crimes and 73 percent of property crimes committed by juvenile offenders (Federal Bureau of Investigation, 1995). The Federal Bureau of Investigation data (1995) also indicates that in the United States, youths under the age of 15 were arrested for approximately 684,000 offenses, whereas youths under the age of 18 were arrested for approximately 2,000,000 offenses. Male juvenile offenders under 18 accounted for 1.5 million arrests.

Juvenile offender behaviors include a broad range of activities usually termed antisocial behaviors. These include aggression, vandalism, setting fires, lying, truancy, and running away. Although these behaviors are diverse, they often occur together. Thus, children who are aggressive are likely to exhibit some of the other antisocial behaviors as well. These behaviors all violate major social rules and expectations; many of them also reflect actions against the environment, including persons and property.

Many different terms have been applied to denote antisocial behavior in children and adolescents; they include acting out, externalizing behaviors, conduct disorder or conduct problems, and delinquency. *Antisocial behavior* is used to refer broadly to any behaviors that reflect social rule violations, acts against others, or both. Examples include acts such as fighting, lying, and other behaviors which may or may not be severe. Such behaviors are evident in clinically referred youths, and they also are seen in varying degrees in most children over the course of normal development.

The current Diagnostic and Statistical Manual of Mental Disorders (4th ed.) (DSM-IV, APA, 1994) defines the diagnosis of *conduct disorder* as children or adolescents who show a pattern of antisocial behavior, in which there is significant impairment in everyday functioning at home or school, or in which the behaviors are regarded as unmanageable by significant others. Thus, conduct disorder is reserved for antisocial behavior that is clinically significant and clearly beyond normal functioning. Clinically severe antisocial behavior is likely to bring a youth in contact with various social agencies.

Mental health services such as clinics or hospitals, and the criminal justice system including the police and the courts, are the major sources of contact for youths whose behaviors are identified as severe. Within the educational system, special services, teachers, and classes are often provided to manage such children on a daily basis.

Assessment is a critical aspect of any therapeutic intervention. The principal aims are formulation of the presenting problem, clarification of resources and obstacles to therapy, and selection of therapeutic strategies most suitable for the individual and family (Sanders & Dadds, 1992). As noted by Horne, Glaser, & Calhoun (1998), assessment strategies should include four primary areas: the child, the family, the school, and the community. Adolescent information can be gathered through several sources (i.e., teacher, parent, peer, self) and in several ways (i.e., observation, rating scales, archival records). Children with conduct problems should always be carefully assessed for other problems. It is not uncommon to find conduct problems co-existing with specific learning disabilities, depression, or attention deficit hyperactivity disorder (Loeber, 1990). Reliability and validity of assessment instruments of children and adolescents with conduct problems become important issues. Reliability and validity reduce the likelihood that processing patterns of behavior applied as causal factors for individual acts will apply equally as well as causal patterns for psychopathology (Dodge, 1993). This study explored self-ratings of male juvenile offenders based on a well-normed omnibus personality inventory.

Statement of the Problem

When working with juvenile offenders, it is important to be aware that they often lack the skills that would allow them to interact positively and non-aggressively with others. Spence (1981) isolated three potential mechanisms whereby skills deficits may influence delinquency: 1) Difficulties in developing and maintaining peer relations, resulting in offending as a means of obtaining approval and status (shoplifting is often a result of this deficit); 2) Difficulties with peers and teachers at school leading to truancy and hence increased opportunities to offend; 3) Mismanagement of encounters with the police, increasing the likelihood of arrest and conviction (running away when the police approach them).

The application of a dimensional approach to studying child behavior has been limited. The greatest obstacle to studying the full range of behaviors of juvenile offenders has been the lack of a sufficiently large national sample. Several studies have used a cluster-analytic method to identify subtypes of clinical, referral, and national samples (Achenbach, Howell, McConaughy, & Stanger, 1995; Curry & Thompson, 1985; Edelbrock & Achenbach, 1980; McDermott & Weiss, 1995; Thompson, Kronenberger, & Curry, 1989). However, very few of these studies have included measures of adaptive skills, and in those that have, the quantity of the adaptive scales (or items) were small (Bates, 1991). These adaptive scales are important for study because they may be shown to play a protective role or inhibiting factor in the development of childhood psychopathology (Coie et al., 1993).

Furthermore, the representation of many of the samples used in other studies is questionable (Bates, 1991).

The developers of the Behavioral Assessment Scale for Children (BASC) (Reynolds & Kamphaus, 1992) took the first step to help develop a meaningful typology of classroom behavior for elementary school children. In an effort to study a complete range of behaviors in the classroom, data were collected at 116 sites that represented a diverse sampling of the population based on geographic region, socioeconomic status, ethnicity, and child exceptionality.

Treating juvenile delinquency is challenging and few programs have been effective in stemming the tide of recidivism among these youth. A successful intervention by a juvenile offender program should attempt to meet the needs of the adolescent. Psychologists can contribute to the body of literature related to delinquency and further aid in the understanding of the multidimensional influences that interact with juvenile offenders. The goal of administering personality inventories is to assess traits that are descriptive of a youth and to determine how these traits relate to presenting problems (Oster, et al., 1988). Psychologists have developed paper-and-pencil, self-report personality inventories and questionnaires, to be completed by the child or adolescent. These instruments attempt to measure the cognitive, emotional, interpersonal, motivational, and attitudinal characteristics of an individual. Yet currently, psychologists do not know juvenile offenders' typologies in response to self-report personality instruments that attempt to

measure maladaptive and adaptive skills. There is a lack of research

regarding adolescent typologies on self-report personality instruments, let

alone subtypes of juvenile offenders. Identifying clusters or subtypes of

profiles on self-report personality inventory measures would be helpful in

terms of specificity of diagnosis or efficaciousness treatment interventions for

juvenile offenders.

Most research in the area of juvenile delinquency focuses on the

negative characteristics of these youth. These negative characteristics have

been the predominant focus of study because most child and adolescent

personality and behavior instruments only measure negative aspects of

personality or behaviors. Positive characteristics or attributes of juvenile

offenders are seldom studied. In an effort to measure behavioral and

emotional difficulties along a continuum, ranging from positive attributes to

negative attributes, it is necessary to utilize an assessment instrument that

includes both positive and negative attributes. The Behavior Assessment

System for Children (BASC) has the ability to measure each juvenile offender

on several dimensions, thus providing a typology of clusters, with which each

adolescent may be placed. Thus, a more complete description of juvenile

delinquency is possible.

Purpose of the Study

The purpose of this study is to identify clusters or subtypes of juvenile

offenders on a well-normed omnibus personality inventory. After reviewing

the literature, it is apparent that the complexity of the juvenile offender

becomes a salient consideration when the clinician is presented with the difficulty of assessment, diagnosis, and treatment of such a child or adolescent. The results of this study may be useful for researchers and clinicians interested in the nature of juvenile delinquency by identifying cluster profiles of a juvenile offender population.

Research Question

Can subtypes of juvenile offenders be identified by means of composite and index scores of self-report profiles of a well-normed omnibus personality inventory?

Hypothesis

The comparisons analyzed in this study include the following hypothesis derived from the research question:

Null Hypothesis. No cluster subtypes of juvenile offenders will be indicated by composite and index scores of self-report profiles of a well-normed omnibus personality inventory.

Variables for hypothesis: Juvenile offender's index scores on the Behavior Assessment System for Children (BASC) (Reynolds & Kamphaus, 1992).

Research Framework

The theoretical framework serving as a foundation for this study is Social Learning Theory (Bandura, 1977) and current ideas about social cognitive mechanisms in the development of disorders of conduct (Dodge, 1993). These theoretical approaches stress the importance of learning

experiences and emphasize how learning shapes maladaptive behaviors, self-efficacy, and self-concept. On the basis of this theory, adaptations from research employing cluster analysis was utilized (Kamphaus, Huberty, DiStefano, & Petoskey, 1997; Huberty, DiStefano, & Kamphaus, 1997) to form the current research analysis.

Definition of Terms

   Juvenile Offender. Juvenile offenders are a diverse population of adolescents.   Their offenses may range from truancy to firearm possession and from shoplifting to assault. The degree of offenses committed by these youths also varies from status offenses (i.e. truancy) to felonies (i.e. aggravated child molestation). Additionally, a great deal of variability exists among those adolescents who either episodically or chronically find themselves involved in the juvenile court system. Calhoun, Glaser, and Bartolomucci (1999) state, "Those who work with these youth never cease to be amazed at the uniqueness of individuals, situations, and case presentations that so often fly in the face of the popular stereotypical perception of them as juvenile delinquents" (p. 24). The operational definition of juvenile offender for this study was a male adolescent who is in the detention center at the time of testing.

   Delinquency. Understanding the etiology and development of juvenile delinquency has been an important area of research for those in psychology, counseling, and related fields.  Delinquent behavior has been associated with problems in family functioning, peer relationships, school performance, and

various personality dimensions of the individual adolescent. Such findings

have yielded multidimensional and multicausal models of delinquent

behavior. For example, Patterson and his colleagues (Patterson, 1986;

Patterson & Dishion, 1985) developed a model that linked poor family

management skills, involvement with deviant peers, and poor academic skills

with delinquency. In a similar vein, Simcha-Fagan and Schwartz (1986)

developed a model linking neighborhood variables, school attachment,

association with delinquent peers, adolescent age, and family functioning

with measures of delinquent behavior. More comprehensive models (Horne,

Norsworthy, Forehand, & Frame, 1990; Henggeler & Borduin, 1989) have

been developed to include the reciprocal effects of the variables measured.

The operational definition of delinquency for this study is behavior elicited by

an adolescent that results in detention.

Juvenile detention centers. Detention centers are secure custody

facilities that detain juveniles on a temporary basis, usually ranging from a

few hours to as much as 90 days. Juveniles are placed in detention by the

police prior to juvenile court referral, by order of court intake workers, and

through judicial decisions which can occur before, during, or after

adjudication or the final disposition of the case. Youths who are detained

while awaiting juvenile court hearings generally fall into three categories:

those who are deemed too risky to release because of the nature of the

delinquency (such as violent offenders or running away); those whose home

environment is unacceptable due to possible child abuse, parental

abandonment, parental instability, etc.; and youths in need of physical or psychological treatment. Other juveniles are temporarily held in detention centers after having being adjudicated delinquent and while awaiting court-ordered placement in an institutional, residential, or treatment facility.

<u>Limitations of Study</u>

This study encompassed a population of juvenile offenders being detained at one detention center in northeast Georgia between April 1998 and August 1999. All of the juveniles who completed the BASC self-report were wards of the Department of Juvenile Justice, therefore permission was granted through the Department of Juvenile Justice. For this population, there was no randomization of subjects, as all of the detainees were given an assessment battery containing the BASC self-report for adolescents (SRP-A). Testing was done on an intermittent basis and some juvenile offenders at the detention center may not have been tested. There was no control for diagnosis, age, or number of offenses. All of the data used for comparison was self-report data and no attempt was made to corroborate it with behavioral presentation.

Valid representation of this population is a concern of this study, in that all the data analyzed was collected through intermittent weekly testing and some subjects might have been missed during weeks where no testing occurred. No special procedures regarding recruitment of subjects were utilized and student clinicians were not aware of the research question addressed in this study prior to the administration of the instruments.

<u>Assumptions</u>

  For the purposes of this study, it is assumed that the juvenile offenders completing the BASC during the time period April 1998 to August 1999 are a typical juvenile offender population in a detention center. Also, it is assumed that the self-report directions and items were fully understood by the adolescents and that they were able to complete the instrument in an accurate and truthful manner.

CHAPTER 2

REVIEW OF RELATED RESEARCH

The Office of Juvenile Justice and Delinquency prevention reports that in 1996 law enforcement agencies in the United States made an estimated 2.9 million arrests of persons under the age of 18 (Office of Juvenile Justice and Delinquency Prevention, 1998). Aggressive behaviors that do not take into consideration the feelings of others and that can be dangerous or hurtful are becoming more visible in today's society. Individuals who display such behaviors often have a history of antisocial behavior stretching back to early childhood. Conduct disorder is often associated with the juvenile offender and is defined as chronic and severe antisocial behaviors that include some combination of physical and verbal aggression, stealing, lying, and lack of feeling for other people (Short & Shapiro, 1993). These behaviors are often frequent and severe and have an impact on the child's academic and social functioning.

However, not all juvenile offenders are diagnosed with conduct disorder. Some may be diagnosed with Oppositional Defiant Disorder, Depression, Attention Deficit Hyperactivity Disorder, or Intermittent Explosive Disorder or they may not meet the criteria for a diagnosis. It is estimated that about four percent of boys under the age of 18 exhibit diagnosable disorders of conduct, and approximately two-thirds of those will

continue to display anti-social behavior into adulthood (American

Psychiatric Association [APA], 1987). Reeves and his associates (1987)

completed a study assessing the diagnoses of 108 children using the DSM-

IIIR diagnostic criteria and found only four children with conduct disorder as

a sole diagnosis and only two children with oppositional defiant disorder as a

sole diagnosis. They further stated that they believed oppositional defiant

disorder and conduct disorder were the same disorder, except that

oppositional defiant disorder is more commonly diagnosed in females.

Additionally Reeves and his colleagues (1987) found that children with

attention deficit hyperactivity disorder were similar to conduct disorder

children due to a high frequency of hostile family environments and fathers

with lower education levels, alcoholism, or antisocial personality traits. They

hypothesize an interaction between the cognitive impairments of attention

deficit hyperactivity disorder and the psychosocial environmental factors

contributing to conduct disorder. Thus, rather than striving to delineate

children's behavior into separate diagnostic categories, it might be more

useful to examine the antisocial behaviors of juvenile offenders as a

heterogeneous set of symptoms (Patterson, 1982).

The diagnosis of conduct disorder appears to be stable across

environments and informants (Patterson, 1986). It follows from the stability

of the behavior that prognosis is likely to be poor. In fact, conduct problems in

childhood and adolescence portend later problems in adulthood, including

criminal behavior, alcoholism, antisocial personality (continued conduct

disorder in adults), other diagnosable psychiatric disorders, and poor work, marital, and occupational adjustment (Robins, 1966; Wolfgang, Figlio, & Sellin, 1972). Antisocial behavior is not only stable over time within individuals but also within families. Antisocial behavior in childhood predicts similar behavior in one's offspring. One of the best predictors of how aggressive a male child will be in childhood is how aggressive his father was at about the same age (Huesmann, Eron, Lefkowitz, & Walder, 1984).

Antisocial behavior is one of the most costly of mental disorders to society (Robins, 1981). The reason for this is that antisocial youths often remain in continued contact with mental health and criminal justice systems into adulthood. The costs for psychiatric and psychological treatment, family social work, juvenile addiction and incarceration, special education programs, and other contacts by social agencies are difficult to estimate. Diverse forms of individual and group therapy, behavior therapy, residential treatment, psychopharmacology, psychosurgery, and a variety of community-based treatments have been applied to juvenile offenders (Kazdin, 1985; Pepler & Rubin, 1991). At present, no treatment has been shown to ameliorate conduct disorder and to controvert its poor long-term prognosis.

The treatment history of conduct disordered youths usually begins with early behavioral problems in school, which may lead to placement in special classes or schools and eventual referral for treatment. At some point later, the individual may be in contact with the judicial system, depending on the specific antisocial behaviors (e.g., fire setting, stealing). Contact with

various mental health services may be made, as well as individual referrals for treatment of disruptiveness and unmanageability. Various forms of counseling, psychotherapy, and medication for the child, as well as supportive treatment for the family, are likely to be provided. In cases of severe child dysfunction or if families cannot manage the child, or both, referral may be made for inpatient psychiatric hospitalization. Finally, some youths with conduct disorder will be placed outside of the home into foster care, either on a temporary or permanent basis.

An adolescent is considered delinquent based on their official contact and involvement with the court system. Behaviors that are referred to as delinquent include offenses that are criminal if committed by an adult as well as a variety of behaviors that are illegal because of the age of the youth. The former offenses are referred to as "index offenses" and include acts such as homicide and burglary. The latter offenses are referred to as "status offenses" and involve the use of alcohol, driving a car, staying out late, not attending school, and other behaviors that would not be crimes if the youths were adults. Some of the index and status offenses (e.g., arson, truancy) are included in the diagnosis of conduct disorder, but others (e.g., prostitution, selling drugs, driving a car under age) are not.

Conduct Disorder

According to the DSM-IV, conduct disorder requires a pattern of multiple behaviors that are evident over a period of time, at least one year (APA, 1994). Delinquency is different in the sense that an isolated act or two

could lead to arrest. Delinquent behavior refers to illegal activities that are committed by the child or adolescent. Conduct disorder youth may or may not engage in behaviors defined as delinquent; they may or may not have contact with the courts.

The behaviors that define or are central to conduct disorder (e.g., fighting, stealing, truancy, lying, setting fires, and others) are not the only characteristics of such youths. Other characteristics of conduct disorder also affect diverse facets of functioning in the child or adolescent. Among some of the alternative symptoms associated with conduct disorder, those related to *hyperactivity* have been frequently identified (Kazdin et al., 1990). These symptoms include impulsiveness, excesses of motor activity, restlessness, inattentiveness, and overactivity in general.

Children and adolescents with conduct disorder behaviors are also likely to show *academic deficiencies*, as reflected in achievement levels, grades, and specific skill areas, particularly reading (Ledingham & Schwartzman, 1984; Sturge, 1982). Such children are often seen by their teachers as uninterested in school, unenthusiastic toward academic pursuits, and careless in their work. As would be expected from these characteristics, conduct disorder children are more likely to be held back in grades, to show lower achievement levels, and to end their schooling sooner than peers matched in age, socioeconomic status, and other demographic variables (Bachman, Johnston, & O'Malley, 1978).

*Poor interpersonal relations* are likely to correlate with antisocial behavior. Children high on aggressiveness or other antisocial behaviors are often rejected by their peers and show poor social skills (Behar & Stewart, 1982). Such youths have been found to be socially ineffective in their interactions with an array of adults (e.g., parents, teachers, community members) and engage in behaviors that promote deleterious interpersonal consequences for themselves.

The correlates of antisocial behavior involve not only overt behaviors but also a variety of *cognitive and attributional processes* that have been shown to correlate with antisocial behavior (Crick & Dodge, 1994; Shirk, 1988). Antisocial youths have been found to be deficient in cognitive problem-solving skills that underlie social interaction. For example, such youths are more likely than their peers to interpret gestures of others as hostile and are less able to identify solutions to interpersonal problem situations or to take the perspective of others.

These symptoms and correlated behaviors refer to concurrent problems that are likely to be evident in the behavior of clinically impaired children. Conduct disorder does not merely emerge spontaneously, nor is its emergence random in a non-selected set of individuals in a population. A number of characteristics continue to emerge over time and, when present, are considered to be risk factors for the onset of conduct disorder. The factors that predispose children and adolescents to conduct disorder have been studied extensively in the context of clinical referrals and adjudicated

delinquents (see Henlggeler, 1989; Patterson, Reid, & Dishion, 1992;

Robins & Rutter, 1990). It has been hypothesized that there are three major

subtypes of conduct disorder: solitary aggressive, group, and undifferentiated

(APA, 1994). The solitary aggressive type possesses aggressive behavior, poor

self-control, and interpersonal difficulty (Quay, 1986). The group type of

conduct disorder includes children who engage in delinquent behaviors in a

group context and has a more positive prognosis. Finally, the

undifferentiated subtype includes a combination of the other two types.

  The list of risk factors that have been implicated in disorders of

conduct in children and adolescents is quite long. Some risk factors predict

dysfunction only at specific periods of development, whereas others are stable

predictors of disorder across major periods of the lifespan. For example, Bell

(1992) found that only 21% of the cases remained at risk through all periods

of assessment in the Boston Early Education Project. Similarly, association

with deviant peers relates to antisocial behavior only when the children reach

adolescence (Dishion, 1990). In contrast, poor parental monitoring is

consistently related to conduct disorder through childhood and adolescence

(Coie, Watt, West, Hawkins, Asarnow, Markman, Ramey, Shure, Long 1993).

As a general rule prediction of dysfunction is best made from proximal risk

factors (Coie et al. 1993). Major categories include risk factors related to the

child, the parent and family, and the school.

Child Factors:

*Temperament* refers to those prevailing aspects of personality that show some consistency across situations and over time. The basis for these characteristics is considered to be genetic or constitutional, and can be identified among children very early in life. Differences in temperament are often based on activity levels, emotional responsiveness, quality of moods, and social adaptability. One dimension used to distinguish children is easy-to-difficult (Plomin, 1983). "Easy" children are characterized by positive mood, approach toward new stimuli, adaptability to change, and low intensity reactions to new stimuli. "Difficult" children, who show opposite patterns to the aforementioned characteristics, are likely to show behavioral problems concurrently or to develop these problems later (Reitsma-Street, Offord, & Finch, 1985). Difficult children are also more likely to be referred for treatment for aggressive behaviors and tantrums (Rutter, Birch, Thomas, & Chess, 1964).

Reeves and colleagues (1987) assert that conduct disorder seems to have an early onset marked by egocentricity, poor interpersonal relationships, aggressiveness, and a hostile family environment. Children with serious conduct disorder appear to evidence symptoms at a very early age, with the disorder developing into delinquency and antisocial behavior in adolescence and adulthood (Wolf, Braukman, & Ramp, 1987). Wolf et al. (1987) suggest that severe conduct disorder runs in families and is treatment-resistant. Although the prognosis for conduct disorder is poor (Dumas, 1989;

Loeber, 1990), only 50% of the children with severe conduct disorder have been found to develop antisocial personality disorder in adulthood (Kazdin, 1987; Robins, 1966). A family history of conduct disorder/antisocial personality disorder appears to be the most predictive variable for the course of conduct disorder (Tramontana & Hooper, 1989).

The prevalence of conduct disorder appears to have increased over the last decade and may be higher in urban than in rural settings (APA, 1994). Rates vary depending on the nature of the population sampled and methods of ascertainment. Costello reported in 1989, it was estimated that the incidence of conduct disorder in the general population ranged from 3% to 7% (Costello, 1989). More recent estimates indicate that for males under 18 years, the rates range from 6% to 16% and for females, the rates range form 2% to 9% (APA, 1994). Conduct disorder in children and adolescents has been found to be the most common reason for referral to mental health services (Wells & Forehand, 1985). Moreover, children with conduct disorder are heavily represented in school classrooms for children with behavioral disturbances (Epstein, Kaufman, & Cullinan, 1986; McGinnis & Forness, 1988; Pullis, 1991).

The prevalence of conduct disorder may vary as a function of sex (Gilbert, 1957). Males are three times more likely to be diagnosed with conduct disorder than females (Graham, 1979). Sex differences are also present in the age of onset of conduct disorder, with males showing conduct problems at a much earlier age than females (Robins, 1966). For example, the

mean onset of symptoms for males was in the 8- to 10-year old level, while the girls it was 14 to 16 years of age. The pattern of characteristics was also different, with boys showing aggression as a reason for referral while for girls it was sexual acting out.

*Neuropsychological deficits and difficulties* refer to diverse aspects of functioning that reflect central nervous system functioning and affect a variety of specific domains of performance. These domains include abilities such as cognitive processes, language and speech, motor coordination, impulsivity, attention, and mental abilities (e.g., intelligence). Evidence suggests that neurological deficits and difficulties early in life place the youth at risk for subsequent conduct problems and delinquency (Moffitt, 1993). For example, deficits in diverse functions related to language (e.g., verbal learning, verbal fluency, verbal IQ), memory, motor coordination, integration of auditory and visual cues, and executive functions of the brain (e.g., abstract reasoning, concept formulation, planning, control of attention) are among factors shown to predict subsequent conduct disorder.

Neuropsychological research on juvenile offenders, conduct disorder, and the prominence of disordered conduct in child psychopathology has been beset with a number of problems. First, as a diagnosis, it pertains to a very heterogeneous range of disturbances in which the manifestation of socially unacceptable behavior is the primary common feature. Second, the bulk of the research has focused on conduct disorder in adolescents, and juvenile offenders have been assumed to fit this diagnostic category. If one excludes

children with ADHD, little is known about the psychological and neurological features of conduct disorders manifested at early ages. Third, youngsters with conduct disorders have a higher risk for accidental head injury (Lewis, Pincus, & Glaser, 1979; Lewis & Shanok, 1977; Pincus & Tucker, 1978). Thus, although neurological abnormalities may be seen on examination, they may be the product – not the cause – of the initial conduct disorder. Given the high frequency of accidental head injury in this population (Pincus & Tucker, 1978), the neuropsychological profile of these children is confounded by these injuries. There have been a few studies of young conduct disorder children. With these limitations in mind, the findings for this category of psychopathology are summarized here.

Cognitive factors have been found to be related to conduct problems (Dodge, 1993). Children with conduct disorder have been found to have a negative response bias and tend to interpret even ambiguous stimuli as negative and hostile toward them (Dodge, Price, Bachorowski, & Newman, 1990). Difficulties with problem solving skills, a rigid response style, and stereotyped responses to conflictual situations have frequently have been found in children with conduct disorder (Short & Shapiro, 1993; Spivack, Platt, & Shure, 1975).

In a study designed to isolate neuropsychological correlates of frontal lobe dysfunction in two groups of adjudicated adolescents, Linz, Hooper, Hynd, Isaac, and Gibson (1990) did not find a profile of neuropsychological dysfunction to be diagnostic of conduct disorder. Some studies have found

that verbal mediation does not appear as well developed in children with conduct disorder as in other children (Hare & Jutal, 1988; Raine, O'Brien, Smiley, Scerbo, & Chan, 1990). Similarly, Moffitt (1993) found deficits in verbal and auditory-memory skills in conduct disordered children compared to normal controls. In this study, children with conduct disorder scored more poorly on the Rey Auditory Verbal Learning Test; Verbal Fluency; and the WISC subtests of Information, Similarities, Arithmetic and Vocabulary. Tramontana and Hooper (1989) suggest that this difficulty in language may translate into impulsive acting out when the child faces a provoking situation because verbal reasoning and judgment skills are deficient. Support for this hypothesis comes from studies that have found a 15-point discrepancy on verbal and performance scores (verbal < performance) on the Wechsler Intelligence Scale for Children - Revised (WISC-R) to be highly predictive of recidivism in adjudicated delinquents (Haynes & Bensch, 1981).

Moffitt (1988, 1993) and colleagues (Moffitt & Henry, 1989) have found executive function deficits in a sample of children with conduct disorder. When conduct disorder co-occurred with ADHD, the scores were poorer than for either disorder alone. White, Moffitt, Caspi, Bartusch, & Needles (1994) found that children with conduct disorder showed higher measures of impulsivity than other groups even with IQ and social class controlled. Pennington and Bennetto (1993) suggest that children with conduct disorder who have concomitant verbal and executive function deficits are at higher risk for significant aggressive and antisocial behaviors.

Children with disorders of conduct also have been studied as to their response to reward and punishment. These children have been found to show a greater tendency to respond to cues of a reward (Gorenstein & Newman, 1980; Newman, Patterson, & Kosson, 1987) and are unable to delay responding for a reward (Shapiro, Quay, Hogan, & Schwartz, 1988). A study investigating sensitivity to reward found that conduct disordered children are exquisitely sensitive to reward and unable to inhibit responding in mixed-incentive situations (Shapiro et al., 1988). Daugherty and Quay (1991) also found a perseverative response set for reward in conduct-disordered children. Children in this study continued maladaptive response patterns even though responses resulted in a loss of rewards.

A number of studies have reported abnormal neurological findings in youngsters with disorders of conduct (Elliott, 1982; Korhonen & Sillanpaa, 1976; Krynicki, 1978; Luchins, 1983). Researchers have found EEG sleep abnormalities, specifically in the expression of slow-wave (delta) activity (Coble, Taska, Kupfer, Kazdin, Unis, & French, 1984); seizure activity that may contribute to recurrent and unprovoked rage attacks (Elliott, 1982); and in some cases, frontal lobe paroxysmal activity, particularly in conduct-disordered adolescents with a significant history of assaultive behavior (Krynicki, 1978). The last finding bears some relationship to the work of Woods and Eby (1982) and Pontius and Ruttiger (1976), who postulated a delay in the development of normal inhibitory mechanisms (i.e., frontal lobe functions) in repetitively aggressive youngsters.

Children with conduct disorders have been reported to show a higher incidence of episodes of disturbed consciousness and, as already noted, to suffer more head injuries than other children (see Lewis & Shanok, 1977; Lewis et al., 1979; Pincus & Tucker, 1978). However, they have not been found to differ from normal controls in terms of perinatal development problems, except that they tend to be small for their gestational age (McGee, Silva, & Williams, 1984). These findings further serve to suggest that the neurological features in some of these children may postdate the initial onset of their conduct disorder.

Conduct-disordered youth have been found to have a high rate of learning disabilities (Cannon & Compton, 1980; Robbins, Beck, Pries, Jacobs, & Smith, 1983; Zinkus & Gottlieb, 1978), as well as more generalized problems with language performance (Funk & Rupert, 1984; Stellern, Marlowe, & Jacobs, & Cossairt, 1985; Wardell & Yeudall, 1980). This appears to apply to both non-incarcerated (Robbins, et al., 1983) as well as incarcerated (Cannon & Compton, 1980) populations. These findings suggest that the presence of cognitive impairments, perhaps particularly of a verbal nature, places the youth at risk for acting out impulsively when placed in frustrating or provocative social situations. The degree of impulsivity per se is unrelated to either the type or the number of crimes committed by the delinquent youth (Oas, 1985). Rather, it may be that the presence of faulty capacities in verbal reasoning and judgement, along with impulsivity, are the necessary ingredients in the production of chronic antisocial conduct.

Additionally, although unrelated to the degree of impulsivity, as already noted, the presence of at least a 15-point inferiority in Verbal IQ versus Performance IQ on the WISC-R was found to predictive of recidivism in adjudicated white delinquent boys (Haynes & Bensch, 1981).

Some studies have examined the relative effects of language and executive function deficits. Linz et al. (1990) selected 20 adolescents meeting DSM-III criteria for conduct disorder from a juvenile evaluation center and compared them to 20 normal adolescents on nine Lurian tasks measuring behaviors attributed to frontal lobe functioning. Differences were obtained on the verbal conflict and verbal retroactive tasks, although these disappeared when controlling for receptive vocabulary. Cole, Usher, and Cargo (1993) examined the relationship between cognitive factors and risk for disruptive behavior disorders in a sample of 82 preschoolers. Verbal, visuospatial, and executive function abilities were examined in terms of their relationship with labeling emotions and behavior control. Difficulties in both verbal and visuospatial processes were associated with a higher risk for behavioral difficulties. Additionally, whereas verbal abilities contributed to the prediction of emotional-labeling accuracy, executive functions were predictive of behavior control. The Cole, Usher, and Cargo (1993) study was noteworthy also for the examination of behavioral risk in a younger sample.

Further investigations into the pattern of neuropsychological deficits in conduct disorders have produced mixed results. Berman & Siegal (1976) found that delinquents performed more poorly than normal controls on

virtually every task on the Halstead-Reitan Battery. Whereas prominent deficits were observed in tasks requiring verbal mediation, concept formation, and perceptual organization, only minimal difficulties were found in memory and gross motor coordination. Brickman, McManus, Grapentine, and Alessi (1984) found that the more violent youth tended to show greater impairment on the Luria-Nebraska Neuropsychological Battery (LNNB) than their nonviolent counterparts, with Expressive Speech and Memory being the distinguishing summary scales. This was true with respect to both male and female juvenile offenders. These findings were similar to the results of earlier studies with delinquent populations by Lewis, et al. (1982) and Voorhees (1981), and were generally consistent with more recent results by Warr-Leeper, Wright, and Mack (1994) using antisocial boys carrying the diagnoses of oppositional defiant disorder or conduct disorder. Hooper and Brown (1995) showed language problems to be prominent in a well-defined sample of children and adolescents with aggressive assaultive conduct disorders. These findings were robust even when controlling for a large number of variables including history of abuse, documented drug and alcohol abuse, extended hospitalizations, special education needs, ADHD, and a variety of demographic variables. However, in controlling for the presence of psychosis and a history of a neurological disorder, Tarter, Hagedus, Alterman, and Katz-Garris (1983) failed to find differences in neuropsychological, intellectual, or psychoeducational performance across groups of adolescent

offenders differing with respect to their type of offense (i.e., violent, nonviolent, sexual).

The previously noted problems limit the generalizations that one can make with respect to this category of child psychopathology. It is probably fair to say that as a group, youth with conduct disorders, especially those with aggressive assaultive tendencies, have more limited verbal abilities and a heightened rate of neurological signs (these however, may rise secondarily as consequences of their behavior disorders). With the possible exception of cases with prominent histories of repetitive, assaultive behaviors, the specific role of neurological factors in conduct disorder remain unclear.

It seems likely that conduct disorder is a heterogeneous disorder in terms of its psychological and neurological correlates and its patterns of antisocial behavior, developmental course, and outcome. As noted by Quay (1988), virtually all the neurobiological correlates of conduct disorder actually appear to be correlates of physical aggression. It is possible, therefore, that those youths with conduct disorder who do not engage in physical aggression have different neurological characteristics.

Several studies have found that s*ubclinical levels of conduct disorder* predict later conduct disorder (Farrington, 1991; Loeber, 1990). Teacher and peer measures of aggressiveness and unmanageability early or late in school years predict subsequent conduct disorder. These behaviors can be called subclinical levels because they are not of the severity for clinical referral. Although there is a clear continuity of problematic behavior, this does not

mean that all, or indeed even most, youths with obstreperous behavior are later identified as antisocial. Nonetheless, early childhood behavior is one of the more robust predictors of later conduct disorder. It is more than the mere presence of unmanageable behavior that serves as a risk factor. Age of onset, number of different types of antisocial behaviors, and number of situations in which the antisocial behaviors are evident (e.g., home, school, community) are relevant as well (Loeber, 1990). Children with earlier onset and greater diversity of problems are at greater risk.

*Academic deficiencies and lower levels of intellectual functioning* are known to relate to other variables such as socioeconomic class and family size. Even when these variables are controlled, educational and intellectual functioning serve as predictors of conduct disorder (West, 1982). Reduced time in school (e.g., due to truancy and expulsion) and less attention from teachers might lead to poor academic achievement. However, evidence suggests that academic deficiencies and lower IQs often predict subsequent conduct disorder (Farrington, 1991; Moffitt, 1993). Although academic dysfunction is a risk factor for conduct disorder, the relationship is not unidirectional. Conduct disorder predicts subsequent failure at school and lower level of educational attainment. (Bachman et al., 1978; Ledingham & Schwartzman, 1984).

Parent and Family Factors:

Several lines of evidence have emerged in support of the role of *genetic influences* in placing individuals at risk (DiLalla & Gottesman, 1989). Twin

studies are frequently used to demonstrate the role of genetic influences. Such studies have shown greater concordance of delinquency, criminality, and conduct disorder among monozygotic versus dizygotic twins (Gottesman, Carey, & Hanson, 1983). Studies of adolescent youths have indicated the concordance rates of 87% for monozygotic and 72% for dizygotic twins (Plomin, 1991). Adoption studies (with child being separated from parent at birth) have shown that conduct disorder and criminality in offspring are more likely when a biological relative has shown these behaviors (Cadoret, 1978; Crowe, 1974). Adoption studies have also affirmed the influence of adverse environmental factors such as conflictual family environment, exposure to discontinuous mothering before being placed in adoptive setting, and the age at which the child was adopted (Cadoret & Cain, 1981).

*Psychopathology* in the parents places the children at risk for psychological dysfunction in general (Rutter et al., 1970; Werner & Smith, 1992). Criminal behavior, antisocial behavior, and alcoholism increase the child's risk for conduct disorder (Rutter & Giller, 1983; West & Prinz, 1987). Longitudinal studies have shown that aggressive behavior is stable across generations within a family (Huesmann et al., 1984).

Parental disciplinary practices and attitudes have been studied extensively in examining the *parent-child interaction*. The degree of child aggression in nonclinical populations is related to the severity of punishment in the home (Sears, Macoby, & Levin, 1957). Conduct disorder youths are more likely than both non-referred youths and clinical referrals without

conduct disorder to be victims of child abuse and to be in homes where spouse abuse is evident (Widom, 1989).

Apart from harsh punishment, studies have shown that more lax, erratic, and inconsistent disciplinary practices by a given parent, or between parents, are related to delinquency. For example, severe punishment on the part of the father and lax discipline on the part of the mother have been implicated in later delinquent behavior. When the parents are consistent in their discipline practices, even if they are punitive, children are less likely to be at risk for delinquency (McCord, McCord, & Zola, 1959). Although severity and inconsistency of punishment contribute to aggressive behavior (Patterson et al., 1992), some evidence suggests that the parental punishment may be a response to aggression rather than antecedent to it (Eron, Huesmann, & Zelli, 1991). It is likely that parents respond to aggressive and deviant behavior of the child and in the process inadvertently exacerbate the child's deviant and aggressive behavior.

Parents of antisocial children are more likely to give commands to their children, to reward deviant behavior indirectly through attention and compliance, and to ignore or provide aversive consequences for prosocial behavior (Patterson et al., 1992). Parents of antisocial or delinquent children are less likely to monitor their children's whereabouts or to make arrangements for their children's care when they are temporarily away from home. Poor supervision includes not having rules in the home stating where the children can go and when they must return home, allowing the children

to roam the streets, and permitting the children to engage in many independent and unsupervised activities (Wilson, 1980).

Parents of antisocial youth, compared with parents of non-referred youth, tend to have a relationship with their child that shows less acceptance, warmth, affection, emotional support, and attachment (Henggeler, 1989). Family relatives of youths with conduct disordered behavior also tend to be less supportive and are characteristically more defensive communications among family members, less participation in family activities, and a more clear dominance of one family member.

Other parent factors found to influence the predisposition of conduct disorder are *parental separation, divorce, and marital discord*. Parental separation during childhood increases the risk of psychological impairment from a variety of childhood disorders (Rutter et al., 1970). Research has consistently shown that unhappy marital relationships, interpersonal conflicts, and aggression characterize the parental relations of delinquent and antisocial children (Rutter & Giller, 1983). Whether or not the parents are divorced or separated, it is the extent of the discord and overt conflict that is associated with risk for conduct disorder and childhood dysfunction (Hetherington, Cox, & Cox, 1982). More extreme open conflict is evident in physical abuse between parents; viewing such violence in extreme open conflict by their parents increases the likelihood that children will be violent themselves (Jaffe, Hurley, & Wolfe, 1990).

*Birth order* has been linked to the onset of conduct disorder. Conduct disorder is greater among middle children in comparison to only children, first born, or youngest children (Glueck & Glueck, 1968; McCord et al., 1959) although there are some exceptions (Eron et al., 1991). Middle children, whom Campbell et al. (1991) describe as frustrated and "squeezed" between other siblings, appear to develop less resources to deal with stressors. The effects are complex and, in the case of delinquency, may vary as a function of type of offense and duration of the only-child status (length of time before another sibling is born). However, in general, an extended period of time as the only or the younger child before the sibling is born reduces the risk for delinquency.

Larger *family size* increases the risk of delinquency (Glueck & Glueck, 1968). Family size relates to the findings of birth order. Efforts to separate these factors have examined family size and the birth spacing of offspring. Children with older siblings, who are delinquent, are more likely to be delinquent; the older the siblings (the greater the space between ages), the greater the likelihood of delinquency (Wadsworth, 1979). Interestingly, the risk is associated with the number of brothers (rather than sisters) in the family (Offord, 1982). If one of the brothers is antisocial, the others are at increased risk for conduct disorder.

Poverty, overcrowding, unemployment, receipt of social assistance, and poor housing are among the more salient measures of *socioeconomic disadvantage* that increase the risk for conduct disorder and delinquency

(Hawkins, Catalano, & Miller, 1992). The effects appear to be enduring.
Interpretation of the impact of low income and related indices of
disadvantage is complicated by the association of socioeconomic status with
other known risk factors, such as larger family size, overcrowding, poor child
supervision, and limited educational opportunities, among others. When
these separate factors are controlled, social disadvantage by itself does not
always show a relation to conduct disorder (Robins, 1978; Wadsworth, 1979).
Also, it is likely that socioeconomic disadvantages exacerbate other factors.
For example, limited financial resources can decrease the likelihood of child
supervision (hiring babysitters) and increase stress (unable to repair an
automobile).

School Related Factors:

  *School settings* can be characterized in many ways, including their
organization, locale, teacher-student ratio, and other characteristics.
However, many of these characteristics are difficult to separate from each
other and from the characteristics of the students, families, and teachers the
school serves. For example, schools in some areas of the city may have a
higher proportion of families who live in poverty, who live in an environment
of criminal activity, and who provide poor child supervision. Additionally,
studies have shown that teachers have exhibited differential treatment and
differential expectations of students based on behavioral and emotional
disorders (Loeber, Dishion, & Patterson, 1984; Patterson, Capaldi, & Bank,
1991).

Overall, there are many correlates to conduct disorder highlighting the complexity and diversity of behaviors observed. These factors are important in understanding the etiology of conduct disordered behaviors and to consider when making a diagnosis of conduct disorder. Given the prior research findings, it would be interesting to examine what children and adolescents exhibiting conduct disorder behavior would endorse in a self-report personality inventory. This study focused on self-report behaviors and characteristics that the juvenile offender endorsed.

<u>Self-Report Measures</u>

Self-report instruments can yield useful information, though an awareness of their individual and collective limitations is necessary for an accurate interpretation of scores. Omnibus personality scales (e.g., Minnesota Multiphasic Personality Inventory- Adolescent version (MMPI-A), Behavior Assessment System for Children (BASC)) yield information about a child's overall emotional functioning in addition to providing specific scale scores. When using omnibus personality scales, the psychologist achieves a well-rounded picture of a child's behaviors and beliefs (Murdoch James, Reynolds, & Dunbar, 1994). It may be possible to determine how a child's emotions and beliefs are impinging on other areas of life, leading to the development of an effective treatment plan.

Strengths and Weaknesses of Self-Report Measures

Strengths

Children and adolescents can be a reliable source of information about themselves (Moreau & Weissman, 1993). Self-reports can provide the psychologist with information about a child's feelings and perceptions, provided the child or adolescent is ready to self-disclose and is not malingering.

Self-reports can be used effectively as initial screening instruments. If scores seem to indicate that a problem exists, more in-depth testing can be undertaken. Cognitive testing to determine whether and how emotions and beliefs may have affected thinking processes maybe warranted in cases in which children report heightened emotional levels. Further behavioral assessment may be undertaken in an attempt to measure how a youth's emotions and beliefs are being exhibited in his or her daily living. If, during the course of an assessment, the psychologist suspects that a child is experiencing a high level of emotional distress and anxiety, specific self-report instruments may also be used to confirm such suspicions and to gather more specific information regarding the youth's emotional distress and anxieties.

Self-report measures for children and adolescents are convenient and economical to administer in terms of time and cost. Self-report measures do not require any special equipment or supplies other than the protocol and a pencil. When using specific rather than omnibus instruments, test

administration is not time- consuming or complicated, and scoring is relatively straightforward. Some omnibus instruments now have computerized programs that allow the assessor to administer and score the instrument via a computer.

<u>Weaknesses</u>

As useful as self-report instruments may be in gathering information helpful to the understanding of a child's or adolescent's behavioral or emotional difficulty, there are several limitations to their use. Often, such instruments are not situation-specific, but measure behavioral or emotional difficulties in more general terms. Other instruments that are situation-specific may not be specific enough for what are often highly unique and personalized difficulties the child or adolescent is experiencing (Kendall & Ronan, 1990). Many self-report instruments do not discriminate between related affective disorders (e.g., depression, anxiety disorder) very well.

Children experience different levels and types of behavioral and emotional difficulties depending on their age and gender (Murdoch, James, Reynolds, & Dunbar, 1994). Although some self-reports provide psychometric data, it is often the case that standardization data is quite limited with respect to age and gender and that when the standardization was done, it was done with an inappropriately small sample. This occurs more frequently with instruments developed specifically to measure one facet of a child's personality. Omnibus instruments like the BASC and the MMPI-A are well-standardized on large populations and provide several norms tables for

children and adolescents based on age, gender, and in the case of the

BASC, on whether the youth is to be compared to a clinical or a general

population.

Developmental considerations, such as maturity level and reading

ability, need to be considered when deciding to administer a self-report and

when interpreting results. The psychologist must be cognizant of the youth's

willingness to self-disclose. Children and adolescents often feel the need to

"say the right thing" rather than accurately relate how they feel. If it is

socially unacceptable for them to be depressed or anxious, or if they have

been told that their fears are "silly" or otherwise unfounded, they might be

quite unwilling to admit to them. Scales that measure lying, faking good,

faking bad, and defensiveness assist the psychologist in assessing the

accuracy of the youth's self-disclosure. Comparing the youth's responses to

parent and teacher ratings of the youth's behavioral and emotional

difficulties may also be useful in determining the validity of the self-report.

Children and Adolescents as Reliable Informants

Using children and adolescents as informants has been an issue in

child assessment for some time, and this is a feature of research that is likely

to continue. Regarding self-ratings, research appears to support the notion

that children can provide a somewhat reliable report of their own behavior

using a self-rating format. As stated previously, research has shown children

and adolescents can be reliable sources of information about themselves

(Moreau & Weissman, 1993). The results of Achenbach and his colleagues

(1987) revealed that an average test-retest reliability for children's self-ratings was acceptable (r= .74); however, all of the six studies analyzed ratings of internalizing or social behavior. Furthermore, this reliability is lower than the .80 to .90 test-retest reliabilities typically seen for adults' ratings of children's behavior.

Behavior Assessment System for Children (BASC)

The BASC (Reynolds & Kamphaus, 1992) is a multi-dimensional, multi-method instrument that assesses behaviors and beliefs in children aged 4-18 years through self- and other-reports. The BASC measures the severity of symptoms of constructs and does not intend to meet criteria for diagnosis. The BASC assesses a wide range of distinctive dimensions. In addition to evaluating personality and behavioral problems and emotional disturbance, the BASC identifies positive attributes that can be capitalized on during treatment. The BASC also collects information from other sources to be compared with the self-report version that is given to the client, i.e., teacher and parent rating scales. Thus, the BASC has available self-report scales, teacher rating scales, parent rating scales, a classroom observation system, and a history form, all of which gather descriptions of the child's observable behavior (Reynolds & Kamphaus, 1992).

There are two forms of the Self-Report of the Personality (SRP) section of the BASC, one for children (8-11 years) and one for adolescents (12-18 years). The SRP is made up of statements to which the child or adolescent answers "True" or "False." Scale and composite scores for behavioral and

emotional symptoms are calculated for the answers given. For example, adolescents whose anxiety and fear levels are impacting their lives negatively would be expected to earn high scores on the Anxiety scale, Clinical Maladjustment composite, and Emotional Symptoms Index, and low scores on the Self-Esteem and Sensation Seeking Scales. High scores on the Atypicality, Depression, and Social Stress scales would not be unexpected.

The Self-Report for Adolescents (SRP-A) is a self-report measure of personality and emotional/psychological functioning and health in adolescents ages 12-18. The SRP-A consists of 186 forced choice items (true/false) that collapse into 14 different scales. There are 10 clinical scales: attitude to school, attitude to teachers, sensation seeking, atypicality, locus of control, somatization, social stress, anxiety, depression, sense of inadequacy. There are also four adaptive scales: relations with parents, interpersonal relations, self-esteem, and self-reliance. The BASC provides several safeguards to help ensure the validity of the responses a child or adolescent gives on the SRP. Items are worded positively and negatively to avoid response sets. Three special validity indices ($F$, $L$, and $V$) are provided to alert the psychologist to a protocol of questionable validity.

As stated previously, the BASC contains adaptive scales or measures of positive adjustment. Adaptive behavior has been defined as behavior that is effective in meeting the natural and social demands of one's environment (Sattler, 1992). Additionally the adaptive skill, social competence, has been broadly defined as the ability to make use of environmental and personal

resources to achieve a good developmental outcome (Henggeler, 1989).

Adaptive scales are important for study because they may be shown to play a

protective role or inhibiting factor in the development of childhood

psychopathology (Coie et al., 1993). The four adaptive scales included on the

SRP-A  (interpersonal relations, relations with parents, self-esteem, and self-

reliance) can allow for measuring the importance of these adaptive skills and

the role they may serve in the development of childhood psychopathology.

Adaptive skills are a variety of individual and social characteristics

that serve protective functions. These protective factors can mitigate the

effects of exposure to risk factors (e.g., Rolf, Masten, Cicchetti, Neuchterlein,

& Weintraub, 1990). Risk factors appear to have additive effects on

vulnerability (Coie et al., 1993). The probability of psychopathology may

increase as a function of the number, the duration, and the "toxicity" of the

risk factors encountered. Protective factors may decrease dysfunction

directly, interact with the risk factor to buffer its effects, disrupt the

mediational chain through which the risk factor operates to cause the

dysfunction, or prevent the initial occurrence of the risk factor (Dignam &

West, 1988). There are two general types of protective factors that may limit

childhood disorders (Cowen, 1985; Garmezy, 1985). The first type of

protective factors includes the individual characteristics, temperament,

dispositions, and skills of the child or adolescent that may cushion the effects

of adversity or stress. Specific behavioral and cognitive skills can be acquired

in order to cope with stressful situations and thus reduce psychological

symptoms (Caplan, Vinokur, Price, & VanRyn, 1989). Self-esteem and self-reliance are two constructs of the BASC that measure this type of protective factor. The second type of risk-inhibiting factor includes the attributes of the child's environment, such as social support, parental warmth, appropriate discipline, adult monitoring and supervision, and bonding to family or other prosocial models (Coie et al, 1993). The BASC contains items relating to interpersonal relations and relations with parents to measure the child's or adolescent's perception of these protective constructs. Knowledge of potential risk factors and available protective factors can potentially allow the clinician to design effective treatment strategies for intervention with child or adolescent who is exhibiting conduct disordered behavior.

Typology Research with Children and Adolescents

Past research has attempted to develop empirical typologies of children and adolescents based on dimensional, self-reported information from large national samples. The purpose of this research was to provide descriptions of adolescent adjustment and functioning that could lead to more informed discussions about interventions.

Quay (1987) and his colleagues have demonstrated some encouraging findings for subgroups of adolescents derived using factor analysis of teen's responses to a behavior inventory. Four groups were identified: undersocialized, anxiety-withdrawal-dysphoria, socialized delinquent, and immature. Differences between these groups on measures of family relationships, personality functioning, and behavioral presentation have been

documented (Quay et al., 1987). However, Quay's research identified

subtype membership based only on a peak elevation on one factor, which

artificially restricts the number of identifiable subtypes.

Sorenson and Johnson (1996) used the MMPI and Jesness Inventory to

construct groupings of juvenile delinquents with respect to self-reports of

personality characteristics. They identified five subtypes of delinquents: an

alienated, unsocialized group, an insecure-anxious group, a group reporting

limited difficulties with peers but alienated from adults, a group with no

apparent emotional disturbance, and a group with multiple elevations.

Huberty, DiStefano, and Kamphaus (1997) delineated a seven-cluster

typology of child behavior based on normative data for the BASC (Reynolds &

Kamphaus, 1992). Those researchers used cluster analysis with BASC

Teacher Rating Scale for Children (TRS-C). The resulting seven clusters were

supported by considerable evidence of internal validity. Petoskey, Cody, and

Kamphaus (1997) followed this study by offering further validation and

support for the distinctness of the clusters with a clinic-referred sample.

Additionally, Rowe, Abelkop, and Kamphaus (1999) employed cluster

analysis on a national sample of adolescents to delineate a typology of

adolescent profiles using the BASC SRP-A. They found eight cluster profiles

which they labeled minimal problems, average, poor adaptive skills, mild

school problems, mild worry/stress, moderate distress-internalizing,

moderate distress-school maladjustment, and severe distress.

CHAPTER 3

METHOD

The research question of this study is to determine whether there are subtypes of male juvenile offenders. The purpose of this study is to identify clusters or subtypes of juvenile offenders on a well-normed omnibus personality inventory. Specifically, this study examined index scores on the BASC self-report for adolescents and analyze the data using cluster analysis. This study will add to research in the area of juvenile offenders and the nature of juvenile delinquency.

Data was collected in weekly group test administrations as part of a larger data collection procedure for all juvenile offenders detained at a regional juvenile detention center. This data collection is part of a larger university research project, which is developing a model of male juvenile delinquency. The test battery was administered by Masters'-level clinicians that participate in a juvenile counseling and assessment program. This program works in a collaborative partnership with the juvenile court system, the State Department of Juvenile Justice, the regional youth detention center, a university counselor training program, and the community to address the psychological, emotional, and educational needs of court-referred youth and their families. All of the juvenile offenders were grouped according

to their composite and index scores on the Behavior Assessment System for Children and consequent cluster subtypes.

The research design for this study of behavioral clustering was adapted from previous research studies involving the BASC. Kamphaus et al. (1997) and Huberty and his associates (1997) conducted cluster analyses of elementary school children using the Teacher Rating Form (TRS-C). The clustering method employed in this study involved a two-step procedure: a Ward hierarchical analysis followed by an iterative cluster partitioning via a K-means analysis. Initially, the data file was split in half and a Ward hierarchical analysis was run for each half in an attempt to "randomize" the data and serve as a source of cross validation. The half-samples cluster solutions were then compared and if the same number of cluster solutions are derived for each data half, the clusters have validity. This comparison lent support for concluding that there exists a cluster typology underlying the data set. The replication half data file was then analyzed as a whole using the Ward hierarchical analysis and K-means analysis. The Statistical Package for Social Sciences (SPSS) 7.5 package was used for all analyses.

<u>Participants</u>

Participants were 385 male adolescents incarcerated in a regional detention center located in northeastern Georgia. The age of the population ranged from 12-17 years old (<u>M</u>=15.53).  The racial composition of the participants consisted of 235 African Americans, 140 Caucasians, 8 Hispanics, 1 Biracial and 1 Samoan. All participants were asked to complete

a Behavior Assessment System for Children (BASC; Reynolds &

Kamphaus, 1992).

Demographic and adolescent-specific information (such as age, race,

education, number of previous detentions, and current offense) was gathered

on each of the juvenile offenders. The above information was available on a

"face sheet" in each youth's file at the detention center. The information is

compiled along with the assessment results in a computer database utilized

by the juvenile counseling and assessment program.

It should be noted that this study used a convenience sample, as all the

juvenile offenders with valid profiles were considered for the study. No

previous screening was completed with regard to demographics, previous

detentions, counseling, medication usage, number and type of offenses, or

reading ability.

<u>Procedures</u>

The Institutional Review Board of the University of Georgia approved

by the research protocol employed in this study, complete with consent forms

and all other materials described here. In all cases, participants were treated

with respect and every effort was taken to preserve confidentiality.

At the time of the assessment, all of the adolescents were detained at

the detention center. The data was collected weekly in a group setting in a

classroom at the juvenile detention center.

The test battery was administered by Masters'-level clinicians that

participate in a juvenile counseling and assessment program. The clinicians

were available throughout the process to answer any questions for the

adolescents. The duration of the assessment sessions ranged from 2.5 to 3.5

hours, depending on the adolescents' speed of completion. All assessment

instruments were scored by the clinicians and the results were entered into a

computer database.

Research Instrument

The instrument used in this study is the <u>Behavior Assessment System

for Children</u> (BASC) Self-Report of the Personality – Adolescent (SRP-A).

Reynolds & Kamphaus (1992) developed the BASC to evaluate personality

and behavior problems in children and adolescents. There are several

different BASC forms: self-report (age 12-18), parent-report, and teacher-

report. Two types of normative scores are provided for the BASC scales. The

BASC rating scales have four norm samples: general, female, male, and

clinical. Results of this study was interpreted with respect to the general

norms. The general norms are based on a large national sample that is

representative of the general population of the United States children with

regard to sex, race/ethnicity, and clinical or special education population.

Development and standardization of the BASC was thorough and systematic,

using numerous statistical techniques to ensure reliability, distinctiveness,

and ease of interpretation (Flanagan, 1995). Three item tryouts were

completed, after which items were arranged into scales and evaluated for

presence of ethnic bias. All of the scales were created theoretically by means

of rational consideration (Kamphaus, 1999). It is important to remember that the BASC measures a severity of symptoms construct, not diagnostic criteria.

The SRP-A is a self-report measure of personality and emotional/ psychological functioning and health in adolescents ages 12-18. The adolescent self-report version of the BASC (SRP-A) consists of 186 forced choice items (true/false) that collapse into 14 different scales. There are 10 clinical scales: attitude to school, attitude to teachers, sensation seeking, atypicality, locus of control, somatization, social stress, anxiety, depression, and sense of inadequacy. There are four adaptive scales: relations with parents, interpersonal relations, self-esteem, and self-reliance.   The total standardization sample for the SRP-A included 4,448 male and female adolescents from throughout the United States and Canada. Ethnic groups for the SRP-A included African-American (16%; N=710), Hispanic (11%; N=335), White (70%; N=3,240), and Other (3%; N=163). Internal consistency coefficients for each subscale on the SRP-A averaged near .80. Test-retest reliability coefficients have a median value of .76 (Reynolds & Kamphaus, 1992).

Several methods of detecting invalid results have been applied in the development of the SRP-A (Reynolds & Kamphaus, 1992). Three special validity indices (*F*, *L*, and *V*) are provided to alert the psychologist to a protocol of questionable validity. The *F* index alerts the psychologist to several situations that call the validity of the youth's responses into question,

including the possibility that the youth responded to the questions in an attempt to appear more disturbed, wanting to "fake bad." Other reasons a youth might receive a high *F* Index score include difficulty reading the questions due to inadequate reading ability or language difficulties; failure to read the questions, resulting in random responses; or a high level of acute distress.

In contrast to the *F* Index, a high score on the *L* Index may indicate that a youth is "faking good" - giving socially acceptable rather than personally accurate answers. The *L* Index is included only on the Adolescent form of the SRP, because younger children have been shown to have a greater tendency to answer questions to indicate the way they "should" feel and behave (Reynolds & Kamphaus, 1992, p. 56). High scores on the *L* Index may also indicate a lack of personal insight and an inclination toward self-idealization. As with the *F* Index, random responses or reading difficulties might also elevate an *L* Index Score.

An elevated *V* Index calls the validity of the responses into question and may occur due to a wide range of behaviors. The *V* Index is made up of highly improbable items that may be answered "True" in cases in which the youth is careless, uncooperative, mentally disabled, confused, illiterate, or psychotic (Reynolds & Kamphaus, 1992, pp. 56-57). Omission of items, response patterns, and inconsistency with parent and teacher reports of behaviors are all indications that the SRP may not be valid.

Table 1

A Description of the SRP-A's Clinical and Adaptive Scales.

| Scale | Definition |
|---|---|
| Anxiety | Feelings of nervousness, worry, and fear; the tendency to be overwhelmed by problems |
| Attitude to School | Feelings of alienation, hostility, and dissatisfaction regarding school |
| Attitude to Teachers | Feelings of resentment and dislike of teachers; beliefs that teachers are unfair, uncaring, or overly demanding |
| Atypicality | The tendency toward gross mood swings, bizarre thoughts, subjective experiences, or obsessive-compulsive thoughts and behaviors often considered "odd" |
| Depression | Feelings of unhappiness, sadness, and dejection; belief that nothing goes right |
| Interpersonal Relations | The perception of having good social relationships and friendships with peers |
| Locus of Control | The belief that rewards and punishments are controlled by external events or people |
| Relations with Parents | A positive regard towards parents and a feeling of being esteemed by them |
| Self-Esteem | Feelings of self-esteem, self-respect, and self-acceptance |

| Scale | Definition |
|---|---|
| Self-Reliance | Confidence in one's ability to solve problems; a belief in one's personal dependability and decisiveness |
| Sensation Seeking | The tendency to take risks, to like noise, and to seek excitement |
| Sense of Inadequacy | Perceptions of being unsuccessful in school, unable to achieve one's goals, and generally inadequate |
| Social Stress | Feelings of stress and tension in personal relationships; a feeling of being excluded from social activities |
| Somatization | The tendency to be overly sensitive to, experience, or complain about relatively minor physical problems and discomforts |

Table 1 is adapted from Reynolds & Kamphaus (1992).

As stated previously, in addition to the clinical scales, the BASC contains Adaptive Scales and composite scores. The Adaptive Scales measure positive adjustment. Thus, high scores indicate positive or desirable characteristics. There are four scales included in this category: Interpersonal Relations, Relations with Parents, Self-Esteem, and Self-Reliance. Additionally, there are four composite scales: School Maladjustment, Clinical Maladjustment, Personal Adjustment, and the Emotional Symptoms Index. The Emotional Symptoms Index is a global indicator of serious emotional

disturbance that is broad-based in terms of its impact on the adolescent's thoughts and feelings.

<u>Statistical Analyses</u>

Instrument and demographic data on each of the participants was collected and stored anonymously until the instrument is scored. A computerized scoring program is available for the BASC-A and the data was scored and entered by a trained student clinician. The data was inputed into SPSS version 7.5 for statistical analyses.

The hypothesis was be performed with an alpha level of significance of $\alpha = .05$ to minimize errors in interpretation of significance. The data was be inspected for irregularities prior to cluster analyses. Additionally, potential outliers were identified and their profiles were inspected to assure the validity of each case. All invalid profiles were removed.

The choice to employ cluster analysis was based on past research with the BASC (Kamphaus, Huberty, DiStefano, & Petoskey, 1997; Huberty, Distefano, & Kamphaus, 1997) and the importance of typologies to educators and clinicians in describing a full range of behaviors that juvenile offenders may display. The Ward method (a hierarchical agglomeration method) was used to identify initial cluster solutions because of its tendency to produce homogeneous clusters where within cluster variance is minimized (Milligan & Cooper, 1987). In this study, the Ward method was used to identify the initial centroids or clusters. An iterative clustering method, a $K$-means procedure, was used to refine the Ward cluster solution. The $K$-means

procedure has been found to be relatively effective in recovering the structure of known data sets (Blashfield & Aldenderfer, 1988). In the *K*-means method, each case is assigned to the cluster with the nearest centroid, then new centroids for the clusters are computed and, finally, the process is repeated until an optimal solution is reached. It is important to follow the Ward hierarchical method with the *K*-means analysis so that cluster membership of the adolescent may change from that determined by the Ward analysis. This is especially relevant for adolescents termed "fence sitters" by Huberty et al. (1997), because their scores tend to fall in the middle of the original cluster membership determined by the Ward analysis, and their profile may fit better in other clusters.

Research Question

Can subtypes of juvenile offenders be identified by means of composite and index scores of self-report profiles of a well-normed omnibus personality inventory?

Hypothesis

The comparisons analyzed in this study include the following hypothesis derived from the research question:

Null Hypothesis. No cluster subtypes of juvenile offenders will be indicated by composite and index scores of self-report profiles of a well-normed omnibus personality inventory.

Variables for hypothesis: Juvenile offender's index scores on the

Behavior Assessment System for Children (BASC) (Reynolds &

Kamphaus, 1992).

Limitations of Study

This study encompassed a population of juvenile offenders being

detained at one detention center in northeast Georgia between April 1998

and August 1999. All of the juveniles who completed the BASC self-report

were wards of the Department of Juvenile Justice, therefore permission was

granted through the Department of Juvenile Justice. For this population,

there was no randomization of subjects, as all of the detainees were given an

assessment battery containing the BASC self-report for adolescents (SRP-A).

Testing was done on an intermittent basis and some juvenile offenders at the

detention center may not have been tested. There was no control for

diagnosis, age, or number of offenses. All of the data used for comparison was

self-report data and no attempt was made to corroborate it with behavioral

presentation.

Valid representation of this population is a concern of this study, in

that all the data analyzed was collected through intermittent weekly testing

and some subjects might have been missed during weeks where no testing

occurred. No special procedures regarding recruitment of subjects were

utilized and student clinicians were not aware of the research question

addressed in this study prior to the administration of the instruments.

<u>Assumptions</u>

For the purposes of this study, it is assumed that the juvenile offenders completing the BASC during the time period April 1998 to August 1999 are a typical juvenile offender population in a detention center. Also, it is assumed that the self-report directions and items were fully understood by the adolescents and that they were able to complete the instrument in an accurate and truthful manner.

CHAPTER 4

RESULTS

The present study examined quantitative differences in index scores on the BASC self-report among a male juvenile offender population. While research confirms the existence of a high-risk group of juvenile offenders who exhibit conduct disorder behaviors as well as emotional disorders (Sorenson & Johnson, 1996), very little research has been conducted with juvenile offenders in terms of subtypes. The purpose of this study was to identify clusters or subtypes of juvenile offenders on a well-normed omnibus personality inventory. Specifically, this study examined index scale scores on the BASC self-report for adolescents and analyzed the data using cluster analysis. An in-depth demographic description of the subjects that participated in this study is presented in the Methods and Discussion chapters of this dissertation. The current chapter presents the results of the quantitative cluster analyses.

Statistical Procedures

Quantitative measurement.

Statistical procedures were employed to analyze the quantitative data to determine if distinct groups existed in the data. Cluster analysis was conducted as a formal, multivariate statistical procedure, not only to meaningfully look at differences among the BASC index scales, but to look for

clusters of juvenile offenders created through patterns of similarities across the clinical and adaptive scales. Adaptations from prior BASC research employing cluster analysis were utilized (Kamphaus, Huberty, DiStefano, & Petoskey, 1997; Huberty, DiStefano, & Kamphaus, 1997) to form the current research analysis.

The juvenile offenders were compared to each other based on their endorsement of items on the following BASC scales: Anxiety, Attitude to School, Attitude to Teachers, Atypicality, Depression, Interpersonal Relations, Locus of Control, Relations with Parents, Self-Esteem, Self-Reliance, Sensation Seeking, Sense of Inadequacy, Social Stress, and Somatization. The quantitative method of cluster analysis investigation involved a two-step procedure: hierarchical agglomeration (Ward hierarchical analysis) and an iterative clustering method (K-means analysis). The objective of the successive clustering of the juvenile offender's index scores was to minimize variance within clusters. That is, clusters or single children were grouped to form new clusters in such a way that the error sum of squares was minimally increased. Because of the measure used in this study, child profile evaluation and dispersion were considered a potentially important determiner of cluster typology.

Research Question

Can subtypes of juvenile offenders be identified by means of composite and index scores of self-report profiles of a well-normed omnibus personality inventory?

Previous research using the BASC informed this study in terms of the maximum number of clusters to be examined. A seven-cluster solution was considered the maximum cluster solution to be examined based on the prior BASC research by Kamphaus, Huberty, DiStefano, & Petoskey, (1997) and Huberty, DiStefano, and Kamphaus (1997). In this research they found seven behavioral clusters of children: Well Adapted, Average, Disruptive Behavior Disorder, Learning Disorder, Physical Complaints/Worry, Severe Psychopathology, and Mildly Disruptive.

An overview of the steps involved in the cluster analyses used in this study is found in Table 2.

Table 2

Overview of the Steps Involved in Cluster Analysis

1) Random assignment of the data into two separate halves – Samples A and B.
2) Exploratory analysis of Sample A.
3) Plotting values of coefficients to determine range of clusters to be examined.
4) Computing a Ward's hierarchical analysis using the narrowed range of cluster solutions from Step 3.
5) Calculating a K-means analysis for each cluster solution using the means or centroid values from Step 4.
6) Comparing the cluster solutions and making a substantive decision in order to determine which cluster solution best "fits" the data.
7) Replicating the final cluster solution with Sample B.

Step 1.

As stated above, the data file was randomly split in half (using the

SPSS 7.5 program) in an attempt to "randomize" the data and serve as a

source of cross validation. Randomly splitting the data in half permitted each

half-sample's cluster solutions to be compared. If the same number of cluster

solutions "fit" both data halves from the split half replication, it can be

concluded that there exists a cluster typology underlying the entire data set

(Huberty, DiStefano, and Kamphaus 1997).

Step 2.

An exploratory cluster analysis was conducted for half of the data

sample (Sample A) using the SPSS 7.5 statistical program. The initial Ward

hierarchical analysis began with as many clusters as there were children in

the half Sample A ($\underline{n}$=170) and it indicated that two to five cluster solutions

might exist.

Step 3.

Additionally, a statistical computer analysis was conducted in

Statistical Analytical Systems (SAS) 8.0 in order to determine the cubic

correlation coefficients which when plotted on a graph, enabled a closer

examination of clustering criterion. The cubic correlation coefficients graph

was important in identifying where the breaks or bend in the data occurred.

The first bend in the data set occurs between the four and five cluster

solution points on the graph. Thus the number of solutions was narrowed to a

range of three to five cluster solution. Figure 1 is a graphical

representation of the coefficients for a one to seven cluster solution for
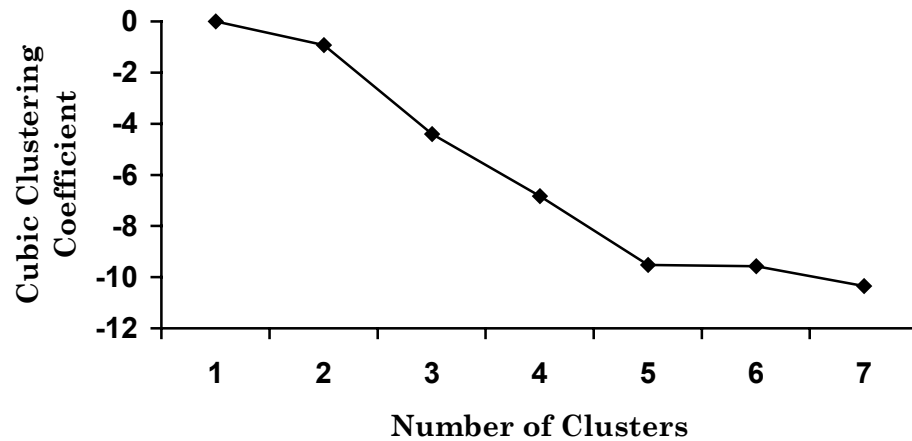


Sample A's data.

Figure 1. The cubic clustering criterion for one- to seven-cluster solution for

Sample A.

Step 4.

A Ward's hierarchical analysis was computed again, using the optimal

range of solutions (three to five) based on the above graph. The means were

found for each variable in the different cluster solutions. The means were

then used as seed values for the next step, K-means analysis.

Step 5.

In general, the K-means method produced exactly $k$ different clusters

of greatest possible distinction. A K-means analysis was calculated for each of

the above cluster solutions (three to five) and the results were then compared

using an ANOVA. Both the three and four-cluster solution were kept as

possible solutions after a substantive decision was made based upon the aforementioned data results.

Step 6.

In order to determine the optimal cluster solution, a close examination of the defining characteristics of cluster solutions (one group vs. another) was completed, since the clusters would not make sense if they were really the same. An examination of the four-cluster solution detected overlap between the clusters and the decision was made that the three-cluster solution was optimal. Figure 2 is a graphical depiction of the three-cluster solution.
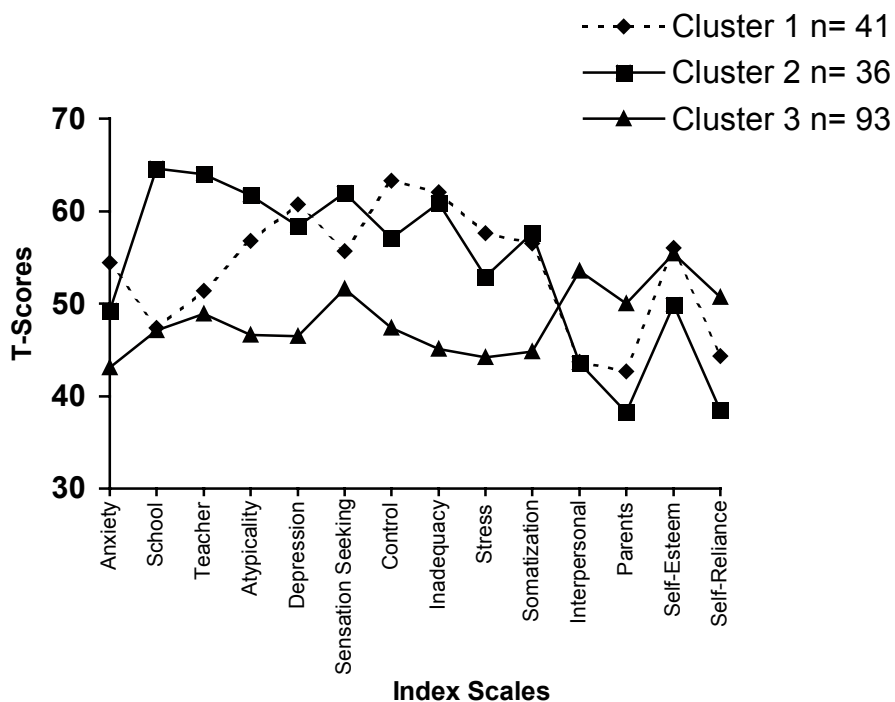


Figure 2. A graphic representation of a three-cluster solution for Sample A.

<u>Step 7.</u>

A replication of the three-cluster solution was performed on the other half of the data sample (Sample B) in order to determine the replicability of the cluster solution. Only 5 (12%) of the scales were classified differently in Sample B.  Results of the clustering the combined samples were consistent with the analysis based on Sample A alone and resulted in the identification of the same three subtypes. This indicates the samples were valid. The results of Sample A's and B's cluster analyses are presented in Table 3 and Table 4 respectively.

Table 3

Results of Sample A's Cluster Analysis

| Scales | Clusters | | | | |
|---|---|---|---|---|---|
| | 1<br>N = 41 | 2<br>N = 36 | 3<br>N = 93 | F<br>(2, 167) | Significance<br>p |
| Anxiety | 54.46 | 49.25 | 43.06 | 35.87 | .000 |
| Attitude to School | 47.34 | **64.58** | 47.08 | 67.01 | .000 |
| Attitude to Teachers | 51.39 | **64.00** | 48.88 | 47.14 | .000 |
| Atypicality | 56.78 | **61.72** | 46.63 | 49.94 | .000 |
| Depression | **60.76** | 58.39 | 46.48 | 78.57 | .000 |
| Sensation Seeking | 55.68 | **62.00** | 51.61 | 21.32 | .000 |
| Locus of Control | **63.27** | 57.08 | 47.35 | 49.91 | .000 |
| Sense of Inadequacy | **62.05** | **60.89** | 45.06 | 82.92 | .000 |
| Social Stress | 57.63 | 52.94 | 44.20 | 65.57 | .000 |
| Somatization | 56.51 | 57.58 | 44.82 | 44.31 | .000 |
| Interpersonal Relations | 43.68 | 43.53 | 53.51 | 27.01 | .000 |
| Relations with Parents | 42.63 | **38.22** | 50.01 | 20.09 | .000 |
| Self-Esteem | 56.00 | 49.89 | 55.42 | 31.15 | .000 |
| Self-Reliance | 53.52 | **38.44** | 50.67 | 19.98 | .000 |

Note: Highlighted means indicates a score in the At-Risk range and reflects at least one standard deviation (either a 7-point increase or decrease) from the mean of 50.

Table 4

Results of Sample B's Cluster Analysis

| Scales | Clusters | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | F | Significance |
| | N = 50 | N = 51 | N = 84 | (2, 182) | P |
| Anxiety | 56.73 | 56.73 | 42.39 | 67.10 | .000 |
| Attitude to School | 54.96 | 57.27 | 46.26 | 25.67 | .000 |
| Attitude to Teachers | 59.72 | **60.27** | 49.21 | 39.47 | .000 |
| Atypicality | 53.12 | **65.80** | 45.55 | 111.40 | .000 |
| Depression | **66.63** | 53.39 | 46.32 | 188.86 | .000 |
| Sensation Seeking | 53.52 | **61.61** | 51.35 | 13.25 | .000 |
| Locus of Control | 51.02 | **63.27** | 45.82 | 126.42 | .000 |
| Sense of Inadequacy | **60.60** | **62.55** | 45.69 | 89.23 | .000 |
| Social Stress | 51.02 | **60.20** | 42.67 | 143.06 | .000 |
| Somatization | **63.67** | 52.34 | 45.55 | 72.60 | .000 |
| Interpersonal Relations | 52.60 | **36.98** | 52.86 | 86.58 | .000 |
| Relations with Parents | 48.00 | **37.02** | 49.24 | 22.48 | .000 |
| Self-Esteem | 56.00 | 44.43 | 55.43 | 54.89 | .000 |
| Self-Reliance | 53.52 | **38.71** | 48.11 | 23.51 | .000 |

Note: Highlighted means indicates a score in the At-Risk range and reflects at least one standard deviation (either a 7-point increase or decrease) from the mean of 50.

The final step was to label each of the 3 subtypes of the three-cluster solution. The following descriptions will refer to Sample A. There were some differences noted in Sample B and these differences will be discussed following the cluster descriptions of Sample A.

*Cluster 1* represents 24% of the juvenile offenders sampled who scored in the At-Risk range on depression, locus of control, and sense of inadequacy. The mean age was 15.33, comprised of 70% African American, 2% Hispanic, and 28% Caucasian youth. It was labeled "Internalizing Problems" because of the significant elevations on the clinical scales and absence of behavior problems. This cluster represents adolescents who endorsed depressive symptoms of sorrow, isolation, and an inability to take pleasure from life. They tend to externalize the cause of their behavior to external factors outside of their control and exhibit mild to moderate depressed confidence. This cluster is somewhat similar to Cluster 2 but the Atypicality and Sensation Seeking scales are not significant which suggests that they less apt to act impulsively and have less unusual perceptions and behaviors.

*Cluster 2* is the most impaired of all, comprising 21% of the sample population. The mean age of this cluster was 15.24, comprised of 40% African American and 60% Caucasian juvenile offenders. This cluster reflects diverse problems including psychotic thought processes (high Atypicality score) and impaired adaptive skills. Juvenile offenders' scores in this cluster were in the At-Risk range for Attitude to School, Attitude to Teachers, Atypicality,

Sensation Seeking, and Sense of Inadequacy. They also scored below average on the adaptive scales; Relations with Parents and Self-Reliance. Therefore "Severe Pathology" was proposed for this cluster. Although the Depression scale was in the Average range, it should be noted that the score was almost clinically significant and may be a contributing factor to their behavior. Social alienation or an unusual family environment might be other contributing factors also.

*Cluster 3* was the largest of the three clusters comprising of 55% of the sample population. The mean age was 15.62, comprised of 56% African American, 2% Hispanic, and 41% Caucasian adolescents. It was labeled "Average" because there were few derivations from the mean. Their adaptive scale scores are also in the "normal" range suggesting that the adolescents in this range feel they have positive interpersonal and parent relationships. They are also satisfied with themselves and exude a sense of self-confidence.

Sample B

*Cluster 1* represents 27% of the juvenile offenders sampled who scored in the At-Risk range on depression, sense of inadequacy, and somatization. The mean age was 15.47, comprised of 44% African American, 2% Biracial, 3% Hispanic, and 51% Caucasian youth. It was labeled "Internalizing Problems" because of the significant elevations on the clinical scales and absence of behavior problems. This cluster is similar to Sample A's Cluster 1 in that Depression and Sense of Inadequacy are clinically significant but instead of Locus of Control, Somatization is clinically significant. This cluster

represents adolescents who endorsed depressive symptoms of sorrow, isolation, and an inability to take pleasure from life. They also exhibit mild to moderate depressed confidence. They tend to be anxious and internalize or repress their feelings while complaining about relatively minor physical problems.

*Cluster 2* is the most impaired of all, comprising 27.5% of the sample population. The mean age was 14.82, comprised of 68% African American, 5% Hispanic, and 27% Caucasian adolescents. This cluster is similar to Sample A's Cluster 1 in that Attitude to Teachers, Atypicality, Sensation Seeking, Sense of Inadequacy, Relations with Parents, and Self-Reliance are all clinically significant. The differences are Sample A, Cluster 2 had clinical elevation on  Attitude to School while Sample B, Cluster 2 had clinical elevations on Locus of Control, Social Stress, and Interpersonal Relations. Sample B's Cluster 2 also reflects diverse problems including psychotic thought processes (high Atypicality score) and impaired adaptive skills. Juvenile offenders' scores in this cluster were in the At-Risk range for Attitude to Teachers, Atypicality, Sensation Seeking, Locus of Control, Sense of Inadequacy and Social Stress. They also scored below average on the adaptive scales; Interpersonal Relations, Relations with Parents and Self-Reliance. Therefore "Severe Pathology" was proposed for this cluster.

*Cluster 3* was the largest of the three clusters comprising of 45% of the sample population. The mean age was 15.43, comprised of 70% African American, 1% Hispanic, 1% Samoan, and 28% Caucasian juvenile offenders.

It is the Sample B cluster which most closely resembles Sample A's matching cluster. It was also labeled "Average" because there were few derivations from the mean. Their adaptive scale scores are also in the "normal" range suggesting that the adolescents in this range feel they have positive interpersonal and parent relationships. They are also satisfied with themselves and exude a sense of self-confidence.

CHAPTER 5

DISCUSSION AND SUMMARY

<u>Statement of the Problem</u>

Schools, parents, and communities have struggled to find answers in the aftermath of the shootings at Columbine High School by two students, Eric Harris and Dylan Klebold, and a more recent shooting at the Washington D.C National Zoo where a 16-year old male has been charged with shooting a 12-year old. Psychologists are faced with the daunting task of understanding the etiology and promoting prevention of disorders of conduct, including violence, among children and adolescents. Conduct problems in children and adolescents constitute a broad range of "acting out" behaviors, ranging from annoying but relatively minor behaviors such as yelling, whining, temper tantrums to aggression, physical destructiveness, and stealing. Typically, these behaviors do not occur in isolation but as a complex or syndrome, and there is strong evidence to support that oppositional behaviors like noncompliance and argumentativeness are developmental precursors to more serious forms of antisocial behavior (McMahon & Wells, 1998).

The Federal Bureau of Investigation's Uniform Crime Reports (1996) determined percentage of arrests accounted for by youth ages 10 through 17. Youth ages 10 through 17 made up approximately 11 percent of the

population in 1996, which means when they accounted for more than 11

percent of the arrests (they accounted for 19%), they are overrepresented in

arrest statistics. A summary of their findings can be found in Table 5. One

source of concern about the overrepresentation of juveniles in arrest statistics

is that their contribution has been growing in recent years, particularly for

offenses involving violence and weapons. For example in 1988 youths 10 to 17

years of age accounted for 11 percent of the arrests for murder compared to

15 percent in 1996.

Table 5

Percent of Arrests Accounted for by Youths Age 10-17

| Arson | 53% | Murder | 15% |
|---|---|---|---|
| Vandalism | 44% | Aggravated Assaults | 15% |
| Motor Vehicle Theft | 42% | Drug Abuse | 14% |
| Burglary | 37% | Vagrancy | 13% |
| Larceny | 34% | Robbery | 32% |
| Stolen Property | 27% | Disorderly Conduct | 26% |
| Weapons | 24% | Rape | 17% |
| Other Sex Offenses | 18% | Simple Assaults | 18% |
| Liquor Laws | 23% | Total for All Offenses | 19% |

Children with conduct problems are at increased risk for manifesting a

variety of other behavior disorders as well. These include ADHD; various

internalizing disorders, such as anxiety and depressive disorders and

Somatization Disorder (Loeber & Keenan, 1994); substance abuse

disorders; psychopathology (Frick, O'Brian, Wooten, & McBurnett, 1994) and

academic underachievement (Hinshaw, 1992). ADHD is the comorbid

condition most commonly associated with conduct problems, and is thought to

precede the development of disorders of conduct in the majority of cases

(McMahon & Wells, 1998).

Overall, there are many correlates to conduct disorder highlighting the

complexity and diversity of behaviors observed. These factors are important

in understanding the etiology of conduct disordered behaviors and to consider

when making a diagnosis of conduct disorder. Psychologists assess and

develop treatment plans based upon an individual's reported needs. It was

therefore considered important to examine what children and adolescents

exhibiting conduct disorder behavior would endorse in a self-report

personality inventory.

The purpose of this study was to identify clusters or subtypes of

juvenile offenders on the BASC, a well-normed omnibus personality

inventory. This study focused on self-report behaviors and characteristics

that the juvenile offender endorsed. The Behavior Assessment System for

Children (BASC) has the ability to measure each juvenile offender on several

dimensions, thus providing a typology of clusters, with which each adolescent

may be placed. Thus, a more complete description of juvenile delinquency is

possible.

<u>Null Hypothesis and Statistical Analysis Results</u>

The hypothesis explored in this study was the possibility of subtypes of juvenile offenders. Through cluster analysis there were 3 distinct subtypes found in the sample population that was assessed.

Although current charge information was not available for every subject, examination of the subjects' current charge while in detention was completed in order to identify the youth in each cluster further. It revealed a great degree of variation in current charges among the juvenile offenders. It is important to remember that while a sizable proportion of youth acquire an official record, an even greater proportion engage, without detection, in activities that are a potential source of conflict with the law. For example, data from a national survey of high school seniors showed that during 1995, 24 percent of females and 36 percent of males admitted shoplifting within the twelve months preceding the survey (Johnston, Bachman, & O'Malley, 1995). The status of juvenile offender in this study was based upon contact with the court and juvenile justice system. Additionally, there could numerous conduct disordered behaviors exhibited by these youth that are unknown.

Six main types of offenses were delineated for this study: property offenses; person-to-person crimes with no sexual offenses; sexual offenses; drug and alcohol offenses; and miscellaneous status offenses. The importance of distinguishing between person-to-person, sexual, and property crimes has been researched extensively (Cornell, 1990; Truscott, 1990). A description of the specific charges can be found in Table 6.

Table 6

Current Offenses of the Juvenile Offenders

| | |
|---|---|
| Property | Criminal Trespass, Theft by Taking, Burglary, Armed Robbery, Theft by Shoplifting, Criminal Damage to Property, Violence Towards Home, Motor Vehicle Theft, Entering Auto, Possession of Weapon at School, Burglary Felony, Criminal Damage to Government Property, Armed Robbery, Attempted Armed Robbery, Possession of Stolen Gun, Carrying a Concealed Weapon, Theft of Firearm, Arson, Theft by Receiving Stolen Property, and Theft of Service |
| Person-to-Person | Simple Assault, Simple Battery, Terroristic Threats, Aggravated Assault, Discharge of Weapon, Fired BB Pellet Gun at Officer, Hijacking, and Harassing Phone Calls |
| Sexual | Sexual Battery, Child Molestation, Incest, Aggravated Molestation, and Sodomy |
| Drugs and Alcohol | Violation of Georgia's Controlled Substance Act (VGCSA), Underage Possession and/or Consumption of Alcohol, Public Drunk, Marijuana Possession, Possession of Crack Cocaine, Simple Possession, Possession of LSD, Possession With Intent to Distribute, and  Public Intoxication |

| | |
|---|---|
| <u>Miscellaneous Status</u> | VOP, Runaway, Truancy, Unruly Delinquency, False Name, Violation of Court Order, Attempt to Elude, Obstruction of Officer, Violation of Intensive Supervision, Ungovernable Behavior, Obstruction of Justice, Affray, Violation of Curfew, Failure to Appear in Court, Driving Without a License, Disruption at School, Failure to Attend School, Contempt of Court, Unlawful Use of License, Destroying Mailbox, Taking Knife to School, and Violation of House Arrest |

*Cluster 1* labeled "Internalizing Problems" represented 26% of all of the juvenile offenders sampled who scored in the At-Risk range on depression, locus of control, sense of inadequacy, and somatization. This cluster had significant elevations on the clinical scales and absence of behavior problems. Yet, these juvenile offenders had 54 property offenses, 33 person-to-person offenses, 6 sexual offenses, 17 drug and alcohol, 28 miscellaneous status offenses. These juvenile offenders had the largest number of property and person-to-person offenses among the three clusters.

*Cluster 2* was the most impaired of all, comprising 24% of the total sample population. This cluster reflected diverse problems including psychotic thought processes (high Atypicality score) and impaired adaptive skills. These juvenile offenders reported near a crisis level of distress as evidenced by multiple elevations on the BASC. Juvenile offenders' scores in

this cluster were in the At-Risk range for Attitude to School, Attitude to Teachers, Atypicality, Sensation Seeking, Locus of Control, and Sense of Inadequacy. They also scored below average on the adaptive scales; Interpersonal Relations, Relations with Parents, and Self-Reliance. Therefore "Severe Pathology" was proposed for this cluster. This pattern suggests social alienation, considerable conflict with authority, and thrill seeking, with little subjective emotional distress. These juvenile offenders in this cluster had 23 property offenses, 15 person-to person offenses, 5 sexual offenses, 6 drug and alcohol offenses, and 20 miscellaneous status offenses.

Overall, *Cluster 3* was the largest of the three clusters comprising of 50% of the total sample population. It was labeled "Average" because there were few derivations from the mean. Their adaptive scale scores are also in the "normal" range suggesting that the adolescents in this range feel they have positive interpersonal and parent relationships. As stated previously, they appear to be satisfied with themselves and exude a sense of self-confidence. This subtype profile suggests remarkable emotional resiliency. These juvenile offenders had 51 property offenses, 25 person-to-person offenses, 11 sexual offenses, 23 drug and alcohol offenses, and 34 status offenses. Although this group denied any behavioral or emotional problems, they still had a large number of sexual (50%), drug and alcohol (50%), and miscellaneous status offenses (41%) relative to the other clusters.

Cluster 3 appear to be a subgroup of juvenile offenders absent of significant pathology, however, their apparent emotional resiliency does not

prohibit them from engaging in serious delinquent activities. As there was no evidence suggesting that the apparently normal profiles could be accounted for by response bias, it was concluded that either the adolescents were able to complete the inventory without admitting to any pathology, or they had developed emotionally without internalizing the need to comply with rules. This latter possibility is consistent with the findings of other researchers who describe socialized delinquents as well-socialized youth who have adjusted normally to a deviant environment (Quay, 1987). Within Cluster 3 in this study, the conclusion seems appropriate given the high frequency of serious criminal charges including sexual offenses for these adolescents.

Overall, the three clusters or subtypes of juvenile offenders identified here did not differ in terms of their current charges. Thus, differentiation of these youth on current charge alone would not be beneficial in terms of treatment since each of the cluster groups endorse different behavioral and emotional profiles. Additionally, other demographic characteristics, including age and race, did not vary significantly between clusters. All subtypes exhibited similar disorders of conduct and age at detention. Some juvenile offenders survive the aforementioned risk factors regarding child, family, and school demonstrating only minimal emotional distress, while others appear distressed and extremely impacted by these risk factors. The differential adjustment to risk factors suggests the presence of some resilience factors that mediate the impact of risk factors. Further research into differences

between these subtypes may lead to the identification of these resiliency factors and suggest treatment strategies useful for groups within this population.

Integration with previous research

The findings of this research complement previous studies investigating youth with disorders of conduct. As stated previously, conduct disordered youth have been found to have a high rate of learning disabilities (Cannon & Compton, 1980; Robbins, Beck, Pries, Jacobs, & Smith, 1983; Zinkus & Gottlieb, 1978), ADHD (Reeves, et al., 1987), poor interpersonal relationships (Behar & Stewart, 1982), and insecure attachment (Henggeler, 1993).

The relationship between juvenile offenders and learning disabilities is robust. Previous research suggests that the presence of cognitive impairments, perhaps particularly of a verbal nature, which places the youth at risk for acting out impulsively when in frustrating or provocative social situations. The degree of impulsivity was unrelated to either the type or the number of crimes committed by the delinquent youth (Oas, 1985). Rather, it was hypothesized that the presence of faulty capacities in verbal reasoning and judgment, along with impulsivity, were necessary ingredients in the production of chronic antisocial conduct. Difficulties in both verbal and visuospatial processes were associated with a higher risk for behavioral difficulties in terms of their relationship with labeling emotions and behavior control. Additionally, whereas verbal abilities contributed to the prediction of

emotional-labeling accuracy, executive functions were predictive of behavior control. In this study, Cluster 2 reported significant problems with attitude to school, teachers, atypical thoughts, and sensation seeking behavior. It could be hypothesized that the juvenile offenders in this cluster who reported difficulties in school also have diagnosable learning disorders contributing to their delinquent behavior. However, even though academic dysfunction is a risk factor for conduct disorder, the relationship is not unidirectional since conduct disorder also predicts subsequent failure at school and lower level of educational achievement.

White et al., (1994) found children with disorders of conduct showed higher measure of impulsivity than other groups even with IQ and social class controlled. Children with conduct disorders have been found to shower a greater tendency to respond to cues of a reward (Gorenstein & Newman, 1980) and are unable to delay a responding for a reward (Shapiro et al., 1988). Furthermore, the children in these studies continued maladaptive patterns even though the responses resulted in a loss of rewards. This seems especially salient in terms of the juvenile offenders in this study who endorsed significant levels of sensation seeking behavior. Many of them have had previous detentions and they have not altered their maladaptive behaviors resulting in their current detention.

Cluster 2 reports poor relationships with parents and problems with their teachers. Children high on aggressiveness or other antisocial behaviors are often rejected by their peers and show poor social skills (Behar &

Stewart, 1982). Such youths have been found to be socially ineffective in their interactions with an array of adults (e.g., parents, teachers, community members) and engage in behaviors that promote deleterious interpersonal consequences for themselves. Cluster 2 does not appear to have any positive relationships with the adults either at home or school and may not value input from these adults while dismissing consequences (if any) given to them in either of these settings.

Research on adolescent attachment suggests that parents continue to function as a secure base for their teenage children (Moreau & Weissman, 1993). As stated previously, the juvenile offenders in Cluster 2 reported poor parent relationships. Researchers have examined the relationship between insecure patterns of attachment and specific deficits in social problem-solving. Three hypotheses were generated. Insecure attachment was related to increased hostile attributional bias in ambiguous social situations and inversely related to competence of solutions generated on a social problem-solving task. Furthermore, insecure attachment was related to the expectation of fewer potential negative consequences for responding aggressively. Thus it could be hypothesized that the juvenile offenders in this study have an insecure attachment from early childhood which is related to their involvement in person to person offenses, poor problem solving abilities, and repeated offending behaviors.

Prior research has previously attempted to cluster juvenile offenders on the basis of other assessment instruments like the MMPI (Sorneson and

Johnson, 1996; Loeber & Schmaling, 1985; Frick et al., 1994) and by other informants like parents or teachers. This study was similar to the former research study since it focused on a self-report personality measure. However, it also measured adaptive skills in addition to clinical scales, which have been identified in past research.

Sorneson and Johnson (1996) identified five subtypes of incarcerated delinquents using scores on the MMPI and Jeness Inventory to construct the groupings. Their groups were labeled an anxious, unsocialized group, an insecure-anxious group, a group reporting limited difficulties with peers but alienated from adults, a group with no apparent emotional disturbance, and a group with multiple elevations. They also found significant differences between clusters with regard to self-reported explosiveness, suicidality, gang activities, substance abuse, history of sexual abuse, and delusions and hallucinations.

Multivariate statistical approaches to classification have identified other dimensions on which conduct problem behaviors can be subtyped. Loeber and Schmaling (1985) have proposed a bipolar unidimensional typology of "overt" and "covert" disorders of conduct behaviors. Overt behaviors include those that involve direct confrontation with or disruption of the environment (i.e., aggression, temper tantrums, argumentativeness), whereas covert behaviors include those that usually occur without the awareness of the caretakers (i.e., lying, stealing, fire setting).

In a recent extension of this investigation, Frick et al. (1994) conducted a meta-analysis of 60 factor analyses with more than 28,000 children. They identified a similar "overt-covert" dimension, but also investigated a second bipolar dimension of "destructive-nondestructive." When the individual behaviors were plotted, four subtypes were obtained; property violations, aggression, status violations, and oppositional.

Additionally, prior BASC research using the teacher report (TRS) has found a seven-cluster solution (Kamphaus, Huberty, DiStefano, & Petoskey, 1997; Huberty, DiStefano, & Kamphaus, 1997) on a normal population. As stated previously, the clusters were labeled: Well Adapted, Average, Disruptive Behavior Disorder, Learning Disorder, Physical Complaints/Worry, Severe Psychopathology, and Mildly Disruptive. Three of the seven clusters were similar to what was found in this study: Average, Physical Complaints/Worry, and Severe Psychopathology.

The *Well Adapted* cluster consisted of children with significant elevations on the adaptive scales and absence of behavior problems. The *Average* cluster had few deviations from the mean, which was similar to this study's Cluster 3. The *Disruptive Behavior* cluster consisted of significant adaptive behavior deficits and elevations on internalizing scales including depression. The *Learning Disorder* cluster had a similar profile to previous data collected on a large learning disability sample (Reynolds & Kamphaus, 1992, p. 125) with significant deficits in adaptive skills on the BASC. The *Physical Complaints/Worry* cluster had mild problems with internalizing

problems with primary elevations on somatic complaints and symptoms of anxiety, secondary. This cluster was similar to this study's Cluster 1 in that there were significant elevations on Depression. However with Sample A and Sample B there were differences on whether there was clinical significance in elevation of the Somatization scale. Additionally, since this study did not find a significant elevation on Anxiety, Cluster 1 was labeled Internalizing Problems. The cluster labeled *Severe Psychopathology* was the most impaired with diverse problems including psychotic thought processes and deficits in adaptive skills. This finding was similar to Cluster 2 in this study. The *Mildly Disruptive* cluster had subclinical scale elevations on Aggression, Hyperactivity, and Adaptability.

Additionally, Rowe, Abelkop, and Kamphaus (1999) found eight subtypes using the BASC-A SRP with a national sample (n=4839). The eight cluster profiles they found were labeled: Minimal Problems, Average, Poor Adaptive Skills, Mild School Problems, Mild Worry/Stress, Moderate Distress-Internalizing, Moderate Distress-School Maladjustment, and Severe Distress. The *Minimal Problem* cluster was the largest cluster (n=1395) and had mean scores below average on eight of the clinical scales. Teachers rated a subsample (n=271) of adolescents in this cluster on the BASC Teacher Rating Scale (TRS) as having no problems. The *Average* cluster had scale scores of average and was the second largest cluster (n=1011). Teacher ratings (n=177) were also in the average range with adolescents in this cluster. The Average cluster was similar to this study's Average cluster,

Cluster 3. The *Poor Adaptive Skills* cluster (n=388) consisted of adolescents whose mean scores on two of the adaptive scales, Interpersonal Relations and Self-Reliance were in the below average range. A subsample of this group (n=59) received average ratings from teachers. The *Mild School Problems* cluster (n=634) was characterized by adolescents who appear to have slightly negative attitudes towards school and teachers and higher than average scores on the Sensation Seeking scale. Ratings by teachers on a subsample of this cluster (n=108) were slightly high on the TRS scales of conduct problems, hyperactivity, attention problems, and learning problems. Teacher's rating on the Adaptive scale and the Social scale were also low. The *Mild Worry/Stress* cluster (n=590) had elevations on the anxiety and social stress scales. Teachers rated these adolescents (n=118) as having an average number of problems. The *Moderate Distress-Internalizing* cluster (n=396) had eleven scales elevated or below average. The scale with the largest derivation from the mean was Depression. Teachers rated a subgroup (n=70) of these adolescents as average. This cluster was similar to this study's Cluster 1. The *Moderate Distress-School Maladjustment* cluster (n=253) had eight scales that were elevated or below average. The highest scales were Attitude to School and Attitude to Teachers. Teacher's ratings on a subsample (n=52) were high on the Conduct scale and elevated on the Aggression scale. The *Severe Distress* cluster was the smallest group (n=172) and had elevations on all but one clinical scale, and all adaptive scales were low. Teachers recognized elevated levels of depression and slightly high aggression, anxiety,

conduct problems and withdrawal in a subgroup (n=24). This cluster resembles Cluster 2 in this study. A detailed examination of the means for the Rowe, Abelkop, and Kamphaus study is found in Appendix A.

<u>Implications of findings</u>

These findings produced many implications for working with juvenile offenders in theoretical, research, and clinical domains.

The theoretical framework serving as a foundation for this study was Social Cognitive Theory (Dodge, 1993) which stresses the importance of learning experiences and emphasizes how learning shapes maladaptive behaviors, self-efficacy, and self-concept. This study highlighted both the maladaptive behaviors and adaptive skills. For instance, the "Severe Pathology" cluster endorses At-Risk levels in Attitude to Teachers and Relations with Parents and Self-Reliance while endorsing At-Risk levels of Sensation Seeking and Atypicality. It could be hypothesized that this group likely feel disenfranchised from their teachers and their parents and as a result, perhaps they have not had the opportunity to learn appropriate behaviors or cognitive processes, like problem solving, from effective role models.

As stated previously, according to the information-processing model of social cognitive theory, an individual's behavioral response to a situational stimulus (such as rejection or provocation) is a function of a sequence of processing steps. It would be beneficial to investigate further the different learning environments of each subtype. The logic is that if a processing action

(such as attributing hostile intent) is correlated with delinquent behavior (such as an aggressive act), then a general processing tendency (a bias to attribute hostile intentions) will be correlated with a general behavioral tendency (disorders of conduct). Likewise, if specific attributions (of helplessness and hopelessness) lead to specific symptom responses (of cortisol secretions and listlessness), then a general processing tendency (to attribute negative stimuli in helpless and hopeless ways) will be correlated with psychopathology (depression). For example Cluster 1, labeled Internalizing Problems, endorses At-Risk clinical elevations on Depression and Sense of Inadequacy and Cluster 3 is in the Average range on all clinical and adaptive scales. How are their learning environments different? Are their intellectual abilities different? Is there a biological foundation to their behavior like ADHD or traumatic brain injury? Or if these variables are not different, what has lead to their different processing tendencies or attributions?

In terms of research, the three-cluster solution was generalized from Sample A to Sample B, another sample of juvenile offenders. This suggests that the cluster solution is not sample specific. Secondarily, it is possible to construct an effective formula for sub-typing individuals, thereby facilitating future study of these subtypes. However, this study revealed that the juvenile offender's behavior (current charge) does not always indicate what they would endorse as emotional or behavioral problems. For example, Cluster 3, the "Average" cluster had 11 juvenile offenders with sexual offenses. Thus, its predictive utility remains unclear. Future research is needed to determine

between-group differences in the effectiveness of specific treatment opportunities and in the likelihood of recidivism and aggression.

Clinically, the three-cluster solution can inform psychologists, parents, and teachers as to which of the children or adolescents have an awareness of their emotional and behavioral problems. Especially, for Cluster 1 who reported clinical elevations in Depression and Sense of Inadequacy, psychologists can play an important role in incorporating these issues on the treatment plan. Thus, cluster typology allows examination of whether some juvenile offenders would benefit from a more specific type of treatment, require more time to adjust to a new placement, or pose a greater risk for recidivism than other juvenile offenders.

Prediction of aggressiveness could also be improved by subtype classification. Individuals experiencing lower levels of anger, suspiciousness, confusion, and anxiety would require greater provocation to act out aggressively than those experiencing greater emotional distress. Additionally, angry individuals would likely become aggressive in an attempt to gain retribution, whereas less distressed individuals may aggress primarily to obtain a goal such as to escape.

Previous efforts to predict treatability, aggressiveness, and recidivism may have been greatly impeded because juvenile offenders across subtypes have been collapsed. Given the variation in emotional functioning across the subtypes, it is reasonable to assume that treatment needs and precursors to aggression also differ across groups. Thus, assessment of current emotional

functioning rather than presence of risk factors and offense histories is needed to make predictions about juvenile offenders. For example, with respect to treatment needs, juvenile offenders who appear to be angry towards authority figures may benefit more from treatment programs focusing on peer interactions than those emphasizing compliance to rules. The converse would be expected for juvenile offenders who appear emotionally resilient but willing to defy social standards and rules. Juvenile offenders experiencing a high degree of internalizing problems may benefit more from programs focusing on reducing anxiety and improving mood than those prioritizing compliance.

Limitations to internal validity

Though all of the results were significant, the research design and method of inquiry included limitations with regard to internal validity. Although the self-report personality measure used was well researched and the validity supported, the BASC self-report provides only one view of an individual's functioning. It is likely that further refinements of this cluster subtyping could be accomplished with information on interpersonal and emotional functioning from other sources.

Limitations to external validity

Valid representation of this population is a concern of this study, in that all the data analyzed was collected through intermittent weekly testing and some subjects might have been missed during weeks where no testing occurred. Furthermore, juvenile offenders in a detention center are likely to

experience not only situational stress induced by the authoritarian setting of the detention center, but also the examination itself. Delinquent children may feel they have everything to lose and nothing to gain by revealing themselves to an examiner. Testing often leads to placement in a treatment facility, boot camp, or some other disposition they regard as punishment. As a consequence, they may seek to defend themselves against self-revelation thus delineating subtypes on self-report measures may not present an accurate picture.

<u>Future directions</u>

These findings, strengths, and limitations of this investigation justify future research endeavors to repeat and expand the method and results. Subsequent research would further expand the literature base for the BASC and juvenile offenders and impact psychological treatment plans and outcome research. Some ideas include the following:

Different Variables

- Investigate possible confounding variables such as neuropsychological problems, learning disabilities, and family environment.

Methodological Improvements

- More control of data completion
- Structured interview for history of behavior problems that led to juvenile offender status

- Multiple sources for information such as parents, teachers, and other siblings

- Larger sample size to see if more clusters exist in juvenile offender populations

Pursuing future research encapsulating neuropsychological measures would be beneficial, as the outcome would help delineate both the behavioral and neurological subtypes of disorders of conduct. Advancing our knowledge of the neuropsychological correlates of conduct disorder should lead to a variety of hypotheses concerning both environmental and endogenous variables involved in the etiology of the conduct disorder subtypes. A population under-investigated in the research literature, that has a lot of potential, is conduct-disordered girls.

<u>Summary</u>

Overall, there have been significant advances in psychology that have direct implications for intervention with children and adolescents with conduct problems. In school, males are twice as likely to be labeled as learning disabled as females and constitute up to 67% of special education classes, and in some school systems they are up to ten times more likely to be diagnosed with serious emotional disorder, especially ADHD (Pollack, 1999). Pollack (1999) cited recent studies which suggest that if a male adolescent's confidence as a learner is impaired, they are more likely to have discipline problems, be suspended from class, or drop out from school.

There has been a tremendous amount of literature concerning the development of conduct problems. By delineating the developmental trajectory that these children follow (development), by elaborating the various risk and protective factors that impact this trajectory (context), and by identifying the potential windows of opportunity in which intervention may be most salient because of the interplay of the developmental and contextual processes over time (interaction), psychologists and clinical researchers have been presented with a conceptual model to guide intervention and assessment.  This study focused on contextual factors and thus provides a foundation for further exploration of the complexity of the characteristics of male juvenile offenders.

# REFERENCES

Achenbach, T. M., McConaughy, S. H., & Howell, C. T. (1987). Child/adolescent behavioral and emotional problems: Implications of cross-informant correlations for situational specificity. Psychological Bulletin, 101, 213-232.

American Psychiatric Association (1987). Diagnostic and statistical manual of mental disorders (3rd ed., rev.). Washington DC: Author.

American Psychiatric Association (1994). Diagnostic and statistical manual of mental disorders (4th ed., rev.). Washington DC: Author.

Bachman, J. G., Johnston, L. D., & O'Malley, P. M. (1978). Delinquent behavior linked to educational attainment and post-high school experiences. In L. Otten (Ed.). Colloquium on the correlates of crime and determinants of criminal behavior (pp 1-43). Arlington, VA: The MITRE Corp.

Bandura, A. (1977). Social learning theory. Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1989). Social cognitive theory. Annals of Child Development, 6, 1-60.

Behar, D., & Stewart, M. A. (1982). Aggressive conduct disorder of children. Acta Psychiatrica Scandinavia, 65, 210-220.

Berman, A. & Siegal, A. (1976). Adaptive and learning skills in juvenile delinquents: A neuropsychological analysis. Journal of Learning Disabilities, 9, 583-590.

Blashfield, R. K. & Alderfer, M. S. (1988). The methods and problems of cluster analysis. In J.R. Nesselrode & R.B.Cattell (Eds.), International handbook of multivariate experimental psychology. New York: Plenum Press.

Bloch, H. A. (1956). Delinquency: The juvenile offender in America today. New York: Random House.

Brickman, A., McManus, M., Grapentine, W., & Alessi, N. (1984). Neuropsychological assessment of seriously delinquent adolescents. Journal of the American Academy of Child Psychiatry, 23, 453-457.

Cadoret, R. J. (1978). Psychopathology in adopted-away offspring of biological parents with antisocial behavior. Archives of General Psychiatry, 35, 176-184.

Cadoret, R. J., & Cain, C. (1981). Environmental and genetic factors in predicting adolescent antisocial behavior. The Psychiatric Journal of the University of Ottawa, 6, 220-225.

Calhoun, G. B., Glaser, B. A., & Bartolumucci, C. L. (1999). Counseling the juvenile offender. In A. M. Horne & M.S. Kiselica (Eds.) Handbook of counseling boys and adolescent males: A practitioner' s guide. (pp. 341-355). Thousand Oaks, CA: Sage Publications.

Campbell, L., White, J., &Stewart, A. (1991). The relationship of psychological birth order to actual birth order. Individual Psychology, 47(3), 380-391.

Cannon, I., & Compton, C. (1980). School dysfunction in the adolescent. Pediatric Clinics of North America, 27, 79-96.

Caplan, R. D., Vinokur, A. D., Price, R. H., & VanRyn, M. (1989). Job seeking, reemployment, and mental health: A randomized field experiment coping with loss. Journal of Applied Psychology, 74, 759-769.

Coble, P., Taska, L., Kupfer, D., Kazdin, A., Unis, A., & French, N. (1984). EEG sleep "abnormalities" in preadolescent boys with a diagnosis of conduct disorder. Journal of the American Academy of Child Psychiatry, 23, 438-447.

Coie, J. D., Watt, N. F., West, S. G., Hawkins, J. D., Asarnow, J. R., Markman, H. J., Ramey, S. L., Shure, M. B., & Long, B. (1993). The science of prevention: A conceptual framework and some directions for a national research program. American Psychologist, 48, 1013-1022.

Cole, P.M., Usher, B.A., & Cargo, A. P. (1993). Cognitive risk and its association with risk for disruptive behavior disorder in preschoolers. Journal of Clinical Child Psychology, 22, 154-164.

Cornell, D. (1990). Prior adjustment of violent offenders. Law and Human Behavior, 14, 569-577.

Costello, E.J. (1989). Developments in child psychiatric epidemiology. Journal of the American Academy of Child and Adolescent Psychiatry, 28, 836-871.

Cowen, E. L. (1985). Person-centered approaches to primary prevention in mental health: situation-focused and competence enhancement. American Journal of Community Psychology, 13, 31-49.

Cramer, P. (1995). Identity, narcissism, and defense mechanisms in late adolescence. Journal of Research in Personality, 29(3), 341-361.

Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information processing mechanisms in children's social adjustment. Psychological Bulletin, 115, 74-101.

Crowe, R. R. (1974). An adoption study of antisocial personality. Archives of General Psychiatry, 31, 785-791.

Daugherty, T.K.,  & Quay, H.C. (1991). Response perseveration and delayed responding in childhood behavior disorders. Journal of Child Psychology and Psychiatry, 32, 453-461.

DiLalla, L. F., & Gottesman, I. I. (1989). Heterogeneity of causes for delinquency and criminality: Lifespan perspectives. Development and Psychopathology, 1, 339-349.

Dignam, J. T., & West, S. G. (1988). Social support in the workplace: Tests of six theoretical models. American Journal of Community Psychology, 16, 701-724.

Dishion, T. J. (1990). The peer context of troublesome behavior in children and adolescents. In P. Leone (Ed.), <u>Understanding troubled and troublesome youth</u> (pp. 128-153). Beverly Hills, CA: Sage.

Dodge, K.A. (1993). Social-cognitive mechanisms in the development of conduct disorder and depression. In L.W. Porter & M.R. Rosenzweig (Eds.), <u>Annual review of psychology</u> (pp. 559-584). Palo Alto, CA: Annual Reviews, Inc.

Dodge, K.A.(1993b). The future of research on the treatment of conduct disorder. <u>Development & Psychopathology,</u> 5, 311-319.

Dodge, K.A., Price, J.M., Bachorowski, J., & Newman, J.P. (1990). Hostile attributional biases in severely aggressive adolescents. <u>Journal of Abnormal Psychology, 99</u>, 385-392.

Dryfoos, J. G. (1997). The prevalence of problem behavior: Implications for programs. In R. Weissberg & T. Gullotta, (Eds.), <u>Healthy children 2010: Enhancing children's wellness</u>. Thousand Oaks, CA:  Sage.

Dryfoos, J.G. (1990). <u>Adolescents at Risk: Prevalence and prevention</u>. New York:Oxford University Press.

Dumas, J.E. (1989). Treating antisocial behavior in children: Child and family approaches. <u>Clinical Psychology Review, 9</u>, 197-232.

Elliott, F.A. (1982). Neurological findings in adult minimal brain dysfunction and dyscontrol syndrome. <u>Journal of Nervous and Mental Disease, 170</u>, 680-687.

Erikson, E. (1968). <u>Identity: Youth and crisis</u>. New York: Norton.

Eron, L. D., Huesmann, L. R., & Zelli, A. (1991). The role of parental variables in the learning of aggression. In D. J. Pepler & K. H. Rubin (Eds.), The development and treatment of childhood aggression (pp. 169-188). Hillsdale, NJ: Lawrence Erlbaum.

Epstein, M.H., Kaufman, J.M., & Cullinan, D. (1986). Patterns of maladjustment among the behavior disorders. II. Boys aged 6-11, boys aged 12-18, girls aged 6-11, and girls aged 12-18. Behavioral Disorders, 10, 125-135.

Fagan, J. (1991). Community-based treatment for mentally disordered juvenile offenders. Journal of Clinical Child Psychology, 20 (1), 42-50.

Farrington, D. P. (1991). Childhood aggression and adult violence: Early precursors and later life outcomes. In D. J. Pepler & K. H. Rubin (Eds.), The development and treatment of childhood aggression (pp. 5-29). Hillsdale, NJ: Lawrence Erlbaum.

Federal Bureau of Investigation, (1995). Crime in the United States 1995, (pp. 207-208).Washington, D.C.: Federal Bureau of Investigation.

Federal Bureau of Investigation, (1996) Crime in the United States 1996, Washington, D.C.: Federal Bureau of Investigation.

Flanagan, R. (1995). A review of the Behavior Assessment System for Children (BASC): Assessment consistent with the requirements of the individuals with disabilities education act (IDEA). Journal of School Psychology, 33, 177-186.

Flowers, R. B. (1990). The Adolescent Criminal: An examination of today's juvenile offender. Jefferson, N.C.: McFarland.

Frick, P. J., O'Brian, B. S., Wooten, J. M. & McBurnett, K. (1994). Psychopathy and conduct problems in children. Journal of Abnormal Psychology, 103, 700-707.

Funk, J.B., & Rupert, E. (1984). Language disorders and behavioral problems in preschool children. Journal of Developmental and Behavioral Pediatrics, 5, 357-360.

Garmezy, N., (1985). Stress-resistant children: The search for protective factors. In J. E. Stevenson (Ed.), Recent research in developmental psychopathology (pp. 213-233). Journal of Child Psychology & Psychiatry, 4 (Book suppl.).

Gilbert, G.M. (1957). A survey of "referral problems" in metropolitan child guidance centers. Journal of Clinical Psychology, 13, 37-42.

Glueck, S., & Glueck, E. (1968). Delinquents and nondelinquents in perspective. Cambridge, MA: Harvard University Press.

Gorenstein, E.E., & Newman, J.P. (1980). Disinhibitory psychopathology: A new perspective and model for research. Psychological Review, 87, 301-315.

Gottesman, I. I., Carey, G., & Hanson, D. R. (1983). Pearls and perils in epigenetic psychopathology. In S. B. Guze, E. J. Earls, & J. E. Barrett (Eds.), Childhood psychopathology and development (pp. 287-300). New York: Raven.

Graham, P. (1979). Epidemiological studies. In H. C. Quay & J.S. Werry (Eds.), <u>Psychopathological disorder of childhood</u> (2nd ed., pp. 185-209). New York: Wiley.

Grusec, J. E. (1992). Social learning theory and developmental psychology: The legacies of Robert Sears and Albert Bandura. <u>Developmental Psychology, 28</u>, 776-786.

Hare, R.D., & Jutal, J. (1988). Psychopathy and cerebral symmetry in semantic processing. <u>Personality and Individual Differences, 9</u>, 329-337.

Hawkins, J. D., Catalano, R. F., & Miller, J. Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance and abuse prevention. <u>Psychological Bulletin, 112</u>, 64-105.

Haynes, J.P., & Bensch, M. (1981). The P>V sign of the WISC-R and recidivism in delinquents. <u>Journal of Consulting and Clinical Psychology, 49</u>, 480-481.

Henggeler, S.W. (1989). <u>Delinquency in Adolescence</u>. Newbury Park, CA: Sage.

Henngeler, S.W. & Borduin, C. (1990). <u>Family Therapy and Beyond: A Multi-Systemic Approach to Treating the Behavior Problems of Children and Adolescents.</u> Pacific Grove, CA: Brooks/Cole.

Hetherington, E. M., Cox, M., & Cox, R. (1982). Effects of divorce on parents and children. In M. Lamb (Ed.), <u>Nontraditional families</u> (pp. 223-288). Hillsdale, NJ: Lawrence Erlbaum.

Hinshaw, S. P., (1992). Externalizing behavior problems and academic underachievement in children and adolescence: Causal relationships and underlying mechanisms. *Psychological Bulletin, 111*, 127-155.

Hooper, S.R., & Brown, T. (1995). Neuropsychological functioning of children and adolescents with conduct disorder and aggressive-assaultive features. Manuscript in submission.

Horne, A. M., Glaser, B. A., & Calhoun, G. B. (1998). Conduct Disorders. In R.T. Ammerman, C.G. Last, & M. Hersen, (Eds.), Handbook of prescriptive treatments for children and adolescents (2nd edition). Boston: Allyn and Bacon.

Horne, A. M., Norsworthy, K., Forehand, R., & Frame, C. (1990). A delinquency prevention program. Unpublished manuscript. Athens: Department of Counseling Psychology University of Georgia.

Huberty, C. J., DiStefano, C., & Kamphaus, R. W. (1997). Behavioral clustering of school children. Multivariate Behavioral Research, 32 (2), 105-134.

Huesmann, L. R., Eron, L. D., Lefkowitz, M. M., & Walder, L. O. (1984). Stability of aggression over time and generations. Developmental Psychology, 20, 1120-1134.

Jaffe, P. G., Hurley, D. J., & Wolfe, D. (1990). Children's observations of violence: I. Critical issues in child development and intervention planning. Canadian Journal of Psychiatry, 35, 466-470.

Johnston, L. D., Bachman, J. G., & O'Malley, P. M. (1995). <u>Monitoring the future, 1995</u>. Ann Arbor: Institute for Social Research, University of Michigan.

Josselson, R., (1990). Identity formation in adolescence: Implications for young adulthood. In S. C. Feinstein & Esman, A. H. (Eds.), <u>Adolescent psychiatry: Developmental and clinical studies</u>, Vol. 16 (142-154). Chicago: University of Chicago Press.

Kamphaus, R. W., Huberty, C. J., DiStefano, C., & Petoskey, M. D. (1997). A typology of teacher-rated child behavior for a national U.S. sample. <u>Journal of Abnormal Child Psychology, 25</u> (6), 453-463.

Kamphaus, R. W., (1999). BASC Workshop. Personal communication. Athens: University of Georgia.

Kazdin, A.E. (1987). <u>Conduct disorders in childhood and adolescence</u>. Beverly Hills, CA: Sage Publications.

Kazdin, A. (1995). <u>Conduct disorders in childhood and adolescence</u> (2nd edition). Thousand Oaks, CA: Sage.

Kazdin, A. E., Siegel, T. C., & Bass, D. (1990). Drawing upon clinical practice to inform research on child and adolescent psychotherapy: A survey of practitioners. <u>Professional Psychology: Research and Practice, 21</u>, 189-198.

Kendall, P. C., & Ronan, K. R. (1990). Assessment of children's anxieties, fears, and phobias: Cognitive-behavioral models and methods. In C. R. Reynolds & R. W. Kamphaus (Eds.), <u>Handbook of psychological and educational assessment of children</u> (223-244). New York: Guilford Press.

Korhonen, T., & Sillanpaa, M. (1976). MBD-like behavior and neuropsychological performances. Acta Paedopsychiatra, 42, 75-87.

Krynicki, V.E. (1978). Cerebral Dysfunction in repetitively assaultive adolescents. Journal of Nervous and Mental Disorders, 166, 59-67.

Ledingham, J. E., & Schwartzman, A. E. (1984). A 3-year old follow-up of withdrawn and aggressive behavior in childhood: Preliminary findings. Journal of Abnormal Child Psychology, 12, 157-168.

Lewis, D., Pincus, J., & Glaser, G. (1979). Violent juvenile delinquents: Psychiatric, neurological, psychological, and abuse factors. Journal of the American Academy of Child Psychiatry, 18, 307-319.

Lewis, D., & Shanok, S. (1977). Medical histories of delinquent and nondelinquent children: An epidemiological study. American Journal of Psychiatry, 134, 1020-1025.

Linz, T.D., Hooper, S.R., Hynd, G.W., Isaac, W., & Gibson, R. (1990). Frontal lobe functioning in conduct disordered juveniles: Preliminary findings. Archives of Clinical Neuropsychology, 5, 411-416.

Loeber, R. (1990). Development and risk factors of antisocial behavior and delinquency. Clinical Psychology Review, 10, 1-42.

Loeber, R., Dishion, T. J., & Patterson, G. R. (1984). Multiple-gating: A multistage assessment procedure for identifying youths at risk for delinquency. Journal of Research in Crime and Delinquency, 21, 7-32.

Loeber, R. & Keenan, K. (1994). Interaction between Conduct Disorder and its comorbid conditions: Effects of age and gender. <u>Clinical Psychology Review, 14</u>, 497-523.

Loeber, R. & Schmaling, K. B. (1985). Empirical evidence for overt and covert patterns of antisocial conduct problems: A meta-analysis. <u>Journal of Abnormal Child Psychology, 13</u>, 337-352.

Luchins, D. (1983). Carbamazepine for the violent psychiatric patient. <u>Lancet, 1</u>, 766.

McCord, W., McCord, J., & Zola, I. K. (1959). <u>Origins of Crime</u>. New York: Columbia University Press.

McGee, R., Silva, P.A., & Williams, S.M. (1984). Perinatal, neurological, environmental, and developmental characteristics of seven-year-old children with stable behavioral problems. <u>Journal of Child Psychology and Psychiatry and Allied Disciplines, 25</u>, 573-586.

McGinnis, E., & Forness, S. (1988). Psychiatric diagnosis: A further test of the special education eligibility hypothesis. <u>Severe Behavior Disorders Monograph, 11</u>, 3-10.

McMahon, R. J. & Wells, K.C. (1998) Conduct problems. In E. J. Mash & R. A. Barkley (Eds.) <u>Treatment of childhood disorders</u> (pp. 111-207). New York: Guilford Press.

Milligan, G. W. & Cooper, M. C. (1987). Methodology review: Clustering methods. <u>Applied Psychological Measurement, 11</u>, 329-354.

Moffitt, T.E. (1988). Neuropsychology and self-reported early delinquency in an unselected birth cohort: A preliminary report from New Zealand. In T.E. Moffitt, S. Mednick, & S.A. Stack (Eds.), <u>Biological contributions to crime causation</u> (pp. 93-120). New York: Nijhoff Press.

Moffitt, T.E. (1993). The neuropsychology of conduct disorder. <u>Development and Psychopathology, 5</u>, 135-151.

Moffitt, T.E., & Henry, B. (1989). Neuropsychological assessment of executive functions in self-reported delinquents. <u>Development and Psychopathology, 1</u>, 105-118.

Moreau, D.L., & Weissman, M. M. (1993). Anxiety symptoms in nonpsychiatrially referred children and adolescents. In C. G. Last (Ed.), <u>Anxiety across the lifespan: A developmental perspective</u> (pp. 37-62). New York: Springer.

Murdoch James, E., Reynolds, C.R., & Dunbar, J. (1994). Self-report Instruments. In  T.H. Ollendick, N.J. King, & W. Yule (eds.), <u>International handbook of phobic and anxiety disorders in children and adolescents</u>. New York: Plenum Press.

Newman, J.P., Patterson, C.M., & Kosson, D.S. (1987). Response perseveration in psychopaths. <u>Journal of Abnormal Psychology,96</u>, 145-148.

Oas, P. (1985). Impulsivity and delinquent behavior among incarcerated adolescents. <u>Journal of Clinical Psychology, 41</u>, 422-424.

Office of Juvenile Justice and Delinquency Prevention (May, 1998). Serious and Violent Juvenile Offenders. Juvenile Justice Bulletin. Washington, D.C.: Government Printing Office.

Offord, D. R. (1982). Family backgrounds of male and female delinquents. In J. Gunn & D. P. Farrington (Eds.), Abnormal Offenders: Delinquency and the criminal justice system. Chichester, UK: Wiley.

Oster, G. D., Caro, J. E., Eagen, D. R., & Lillo, M. A. (1988). Assessing Adolescents. Oxford, England UK: Pergamon Press.

Patterson, G. R. (1982). A social learning approach: 3. Coercive family process. Eugene, OR: Castala.

Patterson, G. R. (1986). Performance models for antisocial boys. *American Psychologist, 41*, 432-444.

Patterson, G. R. & Dishion, T. J. (1985). Contributions of families and peers to delinquency. Criminology, 23, 63-79.

Patterson, G. R., DeBaryshe, B. D., & Ramsey, E. (1989). A developmental perspective on antisocial behavior. American Psychologist, 44, 329-335.

Patterson, G. R., Capaldi, D., & Bank, L. (1991). Bootstrapping yourself in the nomological thicket. Behavioral Assessment, 8, 65-73.

Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). Antisocial boys. Eugene, OR: Castalia.

Pennington, B.F., & Bennetto, L. (1993). Man effects of transactions in the neuropsychology of conduct disorder? Commentary on "The

neuropsychology of conduct disorder." <u>Development and Psychopathology,</u> <u>5</u>, 153-164.

Pepler, D. J. & Rubin, K. H. (Eds.), (1991). <u>The development and</u> <u>treatment of childhood aggression</u>. Hillsdale, NJ: Lawrence Erlbaum.

Pincus, J., & Tucker, G. (1978). Violence in children and adults. <u>Journal of the American Academy of Child Psychiatry, 17</u>, 277-288.

Plomin, R. (1983). Childhood temperament. In B. B. Lahey & A. E. Kazdin (Eds.), <u>Advances in clinical child psychology</u> (Vol. 6, pp. 45-92). New York: Plenum.

Pontius, A., & Ruttiger, K. (1976). Frontal lobe system maturational lag in juvenile delinquents shown in narrative test. <u>Adolescence, 11</u>, 509-518.

Quay, H.C. (1986). A critical analysis of the DSM-II as a taxonomy of pathology in childhood and adolescence. In T. Millon & G.L. Klerman (Eds.), <u>Contemporary directions in psychopathology: Toward the DSM-IV</u> (pp. 151-165). New York: Guilford Press.

Quay, H.C. (1988). The behavioral reward and inhibition system in childhood behavior disorders. In L.M. Bloomindale (Ed.), <u>Attention deficit</u> <u>disorder</u> (Vol. 3). New York: Pergamon.

Radzinowicz, L. (1948). <u>A History of English Criminal Law and Its</u> <u>Administration from 1750-1833</u>. London: Stevens and Sons, p. 14.

Raine, A., O'Brien, M., Smiley, N., Scerbo, A., & Chan, C. (1990). Reduced lateralization in verbal dichotic listening in adolescent psychopaths. <u>Journal of Abnormal Psychology, 99</u>, 272, 277.

Reeves, J. C., Werry, J.S., Elkind, G.S., & Zametkin, A. (1987). Attention Deficit, conduct, oppositional and anxiety disorders in children: II. Clinical characteristics. <u>Journal of the American Academy of Child and Adolescent Psychiatry, 26</u>(2), 144-155.

Reitsma-Street, M., Offord, D. R., & Finch, T. (1985). Pairs of same-sexed siblings discordant for antisocial behavior. <u>British Journal of Psychiatry, 146</u>, 415-423.

Reynolds, C.R., & Kamphaus, R.W. (1992). <u>Behavior Assessment System for Children: Manual</u>. Circle Pines, MN: American Guidance.

Robbins, D.M., Beck, J.C., Pries, R., Jacobs, D., & Smith, C. (1983). Learning disability and the neuropsychological impairment of adjudicated, unincarcerated male delinquents. <u>Journal of the American Academy of Child Psychiatry, 22</u>, 40-46.

Robins, L.N. (1966). <u>Deviant children grown up</u>. Baltimore: Williams & Wilkins.

Robins, L. N. (1978). Sturdy childhood predictors of adult antisocial behavior: Replications from longitudinal studies. <u>Psychological Medicine, 8</u>, 611-622.

Robins, L. N. (1981). Epidemiological approaches to natural history research: Antisocial disorders in children. <u>Journal of American Academy of Child Psychiatry, 20</u>, 566-680.

Robins, L. N., & Rutter, M. (Eds.). (1990). <u>Straight and devious pathways from childhood to adulthood</u>. Cambridge: Cambridge University Press.

Rolf, J., Masten, A. S., Cicchetti, D., Neuchterlein, K. H., & Weintraub, S. (Eds.) (1990). <u>Risk and protective factors in the development of psychopathology</u>. New York: Cambridge University Press.

Rothman, D. J. (1971). <u>The Discovery of the Asylum</u>. Boston: Little, Brown, & Company, pp. 46 - 53.

Rowe, E., Abelkop, S., & Kamphaus, R. (1999). <u>An empirical typology of adolescent adjustment.</u> Poster session presented at the annual meeting of the American Psychological Association, Boston, MA.

Rutter, M., Birch, H. G., Thomas, A., & Chess, S. (1964). Temperamental characteristics in infancy and later development of behavior disorders. <u>British Journal of Psychiatry, 110</u>, 651-661.

Rutter, M., & Giller, H. (1983). <u>Juvenile delinquency: Trends and perspectives</u>. New York: Penguin.

Rutter, M. Tizard, J., & Whitmore, K. (Eds.).  (1970). <u>Education, health, and behaviour</u>. London: Longmans.

Sanders, M. R. & Dadds, M. R. (1993). <u>Behavioral Family Intervention</u>. Needham Heights, MA: Allyn & Bacon.

Sattler, J. M. (1992). <u>Assessment of children</u>, (3rd ed., rev.). San Diego: Jerome Sattler Publisher, Inc.

Sears, R. R., Macoby, E., & Levin, H. (1957). <u>Patterns of child rearing</u>. New York; Harper & Row.

Shapiro, S.K., Quay, H.C., Hogan, A.E., & Schwartz, K.P. (1988). Response perseveration and delayed responding in undersocialized conduct disorder. <u>Journal of Abnormal Psychology, 97</u>, 371-373.

Shirk, S. R. (Ed.). (1988).  <u>Cognitive development and -child psychotherapy</u>. New York: Plenum.

Simcha-Fagan, O. & Schwartz, J. E. (1986). Neighborhood and delinquency: An assessment of contextual effects. <u>Criminology, 24</u>, 667-703.

Sorenson, E., & Johnson, E. (1996). Subtypes of incarcerated delinquents constructed via cluster analysis. <u>Journal of Child Psychology, 37</u>, 293-303.

Spence, S. (1981). Differences in social skills performance between institutionalized juvenile male offenders and a comparable group of boys without offense records. <u>British Journal of Clinical Psychology, 20</u>, 163-172.

Spivack, G.,  & Shure, M. B. (1982). The cognition of social adjustment: Interpersonal cognitive problem solving thinking. In B. B. Lahey & A. E. Kazdin (Eds.), <u>Advances in clinical child psychology</u> (Vol. 5, pp. 323-372). New York: Plenum.

Sturge, C. (1982). Reading retardation and antisocial behaviour. <u>Journal of Child Clinical Psychology and Psychiatry, 23</u>, 21-31.

Short, R.J., & Shapiro, S.K. (1993). Conduct disorders: A framework for understanding and intervention in schools and communities. School Psychology Review, 22, 362-375.

Spivack, G., Platt, J.J., & Shure, M.B. (1975). The problem solving approach to adjustment. San Francisco: Jossey-Bass.

Stellern, J., Marlowe, M., & Jacobs, J., & Cossairt, A. (1985). Neuropsychological significance of right hemisphere cognitive mode in behavior disorders. Behavior Disorders, 10, 113-124.

Tarter, R.E., Hagedus, A.M, Alterman, A.I., and Katz-Garris L. (1983). Cognitive capacities of juvenile violent, nonviolent, ad sexual offenders. Journal of Nervous and Mental Disease, 171, 564-567.

Tramontana, M.G, & Hooper, S.R. (1989). Neuropsychology of child psychopathology. In C.R. Reynolds & E. Fletcher-Janzen (Eds.), Handbook of clinical child neuropsychology (pp. 87-106). New York: Plenum Press.

Truscott, D. (1990). Assessment of overcontrolled hostility in adolescence. Psychological Assessment, 2, 145-148.

Voorhees, J. (1981). Neuropsychological differences between juvenile delinquents and functional adolescents. Adolescence, 16, 57-66.

Wadsworth, M. (1979). Roots of delinquency: Infancy, adolescence, and crime. New York: Barnes and Noble.

Wakefield, W. & Hirschel, J.D. (1996). England. In Donald J. Shoemaker (Ed.), International Handbook of Juvenile Justice. Westport, CT: Greenwood Press.

Wardell, D., & Yeudall, L. (1980). A multi dimensional approach to criminal disorders. The assessment of impulsivity and its relation to crime. Advances in Behavioral Research and Therapy, 2, 159-177.

Warr-Leeper, G., Wright, N.A., & Mack A. (1994). Language disabilities of antisocial boys in residential treatment. Behavioral Disorders, 19, 159-169.

Wells, K.C., & Forehand, R. (1985). Conduct and oppositional disorder. In P.H. Bornstein & A.E. Kazdin (Eds.), Handbook of clinical behavior therapy with children (pp. 36-65) Homewood, IL: Dorsey.

Werner, E. E., & Smith, R. S. (1992). Vulnerable, but invincible: A longitudinal study of resilient children and youth. New York: McGraw-Hill.

West, M. O. (1982). Delinquency: Its roots, careers and prospects. Cambridge, MA: Harvard University Press.

West, M. O., & Prinz, R. J. (1987). Parental alcoholism and child psychopathology. Psychological Bulletin, 102, 203-218.

White, J., Moffitt, T.E., Caspi, A., Bartusch, D.J., & Needles, D.J. (1994). Measuring impulsivity and examining its relationship to delinquency. Journal of Abnormal Psychology, 103, 192-205.

Widom, C. S. (1989). Does violence beget violence? A critical examination of the literature. Psychological Bulletin, 106, 3-28.

Wilson, H. (1980). Parental Supervision: A neglected aspect of delinquency. British Journal of Criminology, 20, 203-235.

Wolf, M. M., Braukman, C. J., & Ramp, K. A. (1987). Serious delinquent behavior as part of a significantly handicapping condition: Cures and supportive environments. <u>Journal of Applied Behavior Analysis, 20</u>, 347-359.

Wolfgang, M. E., Figlio, R., & Sellin, T. (1972). <u>Delinquency in a birth cohort</u>. Chicago: University of Chicago Press.

Woods, B.T., & Eby, M.D. (1982). Excessive mirror movements and aggression. <u>Biological Psychiatry, 17</u>, 23-32.

Zinkus, P.W., & Gottlieb, M.I. (1978). Learning disabilities and juvenile delinquency. <u>Clinical Pediatrics, 17</u>, 775-780.

APPENDICES

Appendix A   Sample Sizes, Proportions, and Demographics for the Eight

Cluster Solution (Total N = 4,839)

| Cluster (Type) | N | % of Sample | % Male | % Female | Mean Age (years) | % Asian | % African American | % Hispanic | % Native American | % White | % Other |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Minimal Problems | 1395 | 28.8% | 45.2 | 54.8 | 14.10 | .1 | 14.6 | 5.3 | .5 | 77.3 | 1.3 |
| 1. Average | 1011 | 20.9% | 36.5 | 63.5 | 14.99 | 1.2 | 16.6 | 5.9 | 1.0 | 74.7 | .6 |
| • Poor Adaptive Skills | 388 | 8% | 56.4 | 43.6 | 14.99 | 2.3 | 21.9 | 7.0 | 1.8 | 65.7 | 1.3 |
| • Mild School Problems | 634 | 13.1% | 76.0 | 24.0 | 14.81 | .8 | 14.7 | 7.1 | 1.4 | 73.7 | 2.4 |
| • Mild Worry/Stress | 590 | 12.2% | 32.4 | 67.6 | 14.61 | 2.0 | 17.1 | 7.6 | 1.5 | 69.8 | 1.9 |
| • Moderate Distress-Internalizing | 396 | 8.2% | 44.4 | 55.6 | 14.61 | 1.8 | 13.1 | 9.8 | 3.0 | 70.5 | 1.8 |
| • Moderate Distress-School Maladjustment | 253 | 5.2% | 62.1 | 37.9 | 14.08 | 1.2 | 9.8 | 9.8 | .8 | 77.6 | .4 |
| • Severe Distress | 172 | 3.6% | 44.2 | 55.8 | 14.09 | 2.9 | 4.1 | 11.0 | 1.7 | 78.5 | 1.7 |
| FULL DATA SET | 4,839 | 100% | 47.6 | 52.4 | 13.99 | 1.4 | 15.2 | 6.9 | 1.2 | 73.9 | 1.4 |

Appendix B    Mean T-Scores by Scale for the Normative Eight-Cluster Typology (N = 4, 839)

| Scales | Cluster | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 Minimal Problems | 2 Average | 3 Poor Adaptive Skills | 4 Mild School Problems | 5 Mild Worry/ Stress | 6 Moderate Distress- Internalizing | 7 Moderate Distress- School Maladjustment | 8 Severe Distress |
| Attitude to School | 42.85 | 45.73 | 51.09 | 58.87 | 49.27 | 56.87 | 64.96 | 63.48 |
| Attitude to Teachers | 42.86 | 45.37 | 51.88 | 58.31 | 49.85 | 56.42 | 64.82 | 63.40 |
| Sensation Seeking | 45.19 | 47.72 | 47.88 | 59.15 | 49.99 | 53.75 | 61.52 | 56.78 |
| Atypicality | 41.61 | 48.64 | 48.77 | 48.84 | 56.55 | 63.02 | 57.84 | 68.21 |
| Locus of Control | 41.25 | 46.68 | 49.72 | 49.66 | 56.90 | 63.29 | 62.12 | 68.91 |
| Somatization | 42.73 | 50.44 | 50.22 | 46.47 | 56.90 | 61.83 | 53.13 | 65.04 |
| Social Stress | 40.99 | 48.47 | 51.57 | 45.66 | 59.43 | 64.31 | 55.59 | 68.73 |
| Anxiety | 40.80 | 52.68 | 49.52 | 44.29 | 60.18 | 60.60 | 52.34 | 63.77 |
| Depression | 43.74 | 45.54 | 50.95 | 47.16 | 53.34 | 67.45 | 59.05 | 76.81 |
| Sense of Inadequacy | 42.08 | 46.67 | 52.15 | 49.34 | 54.07 | 63.61 | 60.35 | 68.58 |
| Relations with Parents | 55.04 | 54.13 | 45.08 | 50.17 | 49.47 | 43.74 | 32.66 | 28.12 |
| Interpersonal Relations | 55.01 | 53.79 | 40.58 | 52.80 | 49.90 | 39.59 | 47.94 | 24.34 |
| Self-Esteem | 56.06 | 51.82 | 47.31 | 54.50 | 43.48 | 37.81 | 44.78 | 31.02 |
| Self Reliance | 54.73 | 53.80 | 37.26 | 53.29 | 50.84 | 42.94 | 44.32 | 31.01 |

Note: Highlighted means represent either a 7-point increase or decrease from mean of 50.