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A COMPARATIVE ANALYSIS OF THE WRAML PERFORMANCE OF ADOLESCENTS WITH CONDUCT DISORDER OR OPPOSITIONAL DEFIANT DISORDER AND A NON-CLINICAL GROUP

by

MARIA BELLASSAI GERSHON

A dissertation submitted to the Graduate Faculty in Educational Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

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Abstract

A COMPARATIVE ANALYSIS OF THE WRAML PERFORMANCE OF ADOLESCENTS WITH CONDUCT DISORDER OR OPPOSITIONAL DEFIANT DISORDER AND A NON-CLINICAL GROUP

by

MARIA BELLASSAI GERSHON

Adviser: Professor Philip Saigh

This study compared the memory and learning abilities of adolescents with Conduct Disorder (CD) or Oppositional Defiant Disorder (ODD) and their non-clinical peers. At-risk youth who attended special education classes and students in the regular education program were asked to participate (students in advanced classes were excluded). The DICA-R-A-P was administered to identify students who met criteria for CD and ODD or other disorders. Youth with comorbid conditions were excluded from the study. Three comparison groups (21 students in each group) were formed. Chi-square analyses revealed that the ethnicity, SES, gender, and ages of the three groups were not significantly different. Statistical analyses further indicated that CD and ODD youth scored significantly below their non-clinical peers on the four indexes of the Wide Range Assessment of Memory and Learning (WRAML). Data analyses also revealed that the scores of CD and

ODD youth were not significantly different. Furthermore, CD and ODD youth did comparatively better on visual memory tasks than they did on verbal memory tasks. Prescriptive models should consider these findings in planning successful educational programs for CD and ODD students. Future research might wish to examine the memory and learning abilities of younger children (5 to 12 years of age).

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Introduction

Conduct Disorder (CD) and Oppositional Defiant Disorder (ODD) are disorders of children and adolescents that are listed in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994). Preliminary evidence supports the existence of memory and learning impairments among children with CD or ODD (Culberton, Feral, & Gabby, 1989; Schachar & Wachsmuth, 1990). Research indicated that youth who met criteria for CD and Oppositional Disorder (OD) scored significantly lower than non-clinical control participants on standardized tests of intelligence and academic achievement (Schachar & Wachsmuth, 1990). Furthermore, it was reported that CD youth scored significantly below their non-clinical peers on measures of long- and short-term memory (Culberton, Feral, & Gabby, 1989). However, there is a paucity of comparative information regarding the cognitive functioning of CD and ODD youth. As such, this paper compared and contrasted the performance of adolescents with CD, ODD, and a non-clinical group on the Wide Range Assessment of Memory and Learning (WRAML; Sheslow & Adams, 1990).

Chapter One

This chapter presents information relative to the history, nosology, and epidemiology among youth with CD. Further, studies that examined the intellectual abilities, academic achievements, and cognitive impairments of CD youth and juvenile delinquents are reviewed.

Historical Background of Conduct Disorder

Information regarding conduct disorders among children and adolescents has been chronicled for years. Conduct problems were recognized before the existence of child psychiatry when adult psychiatrists tried to understand the behaviors of patients who were antisocial and not noticeably psychotic (Lewis, 1996). The first volume of the American Journal of Insanity listed 97 references on insanity which had been written from 1737 to 1844 (Lowrey, 1944). In that journal, the only article that discussed insanity in childhood was written by Benjamin Rush. In 1830, Rush published a book entitled Medical Inquiries and Observations Upon the Diseases of the Mind in which he recorded the following:

> Two boys, the one of eleven and the other of seven years of age, were admitted into our hospital with this disease (the latter during the time of my attendance in 1799)...they both discovered the countenance of madness, and they both attempted to bite, first their mothers, and afterwards their own flesh (Rush, 1830, p. 53).

In 1838, Esquirol described the cases of three "little homicidal monomaniacs" (Kanner, 1962, p. 98). Esquirol reported that an 11-year-old girl pushed two infants into a well. Another girl, seven years old, refused to play, had temper tantrums, and expressed regret that her mother did not die. A third girl, eight years old, threatened to kill her stepmother and her brother because she disapproved of her father's remarriage.

In 1867, an English psychiatrist named Henry Maudsley published a book entitled The Physiology and Pathology of the Mind. In the chapter on insanity in early life, Maudsley reported that childhood psychiatric problems were not uncommon and he gave clear descriptions of aberrant child behaviors. Maudsley cited a case that occurred in 1827 of a seven-year-old girl who had been referred to his colleague, Dr. Prichard. The girl was described as "rude, vulgar, abrupt, and perfectly unmanageable...Her parents had no control over her, and she was persistently cruel to her sisters...she had stolen everything which she thought would be cared for, and either hid or destroyed it" (Maudsley, 1867, p. 286). Prichard referred to patients who were not obviously psychotic but who repeatedly evidenced antisocial behavior as "morally insane."

Most of the research that dealt with childhood psychiatric problems was conducted in Europe. An article written by James MacDonald in 1846 was possibly the first American paper that specifically dealt with insanity in childhood. MacDonald related the case of a four-year-old boy whose first

symptoms seemed to follow a fit of anger; the boy sometimes became violent and struck those around him.

The first American survey of the literature on insanity was written by S. V. Clevenger in 1883. Clevenger was a well-known figure in American medicine who was employed as a pathologist at the Cook County Insane Asylum. He wrote about several cases of pyromaniacs who ranged in age from 9 to 16 years. Clevenger noted that two children under six years of age were "mischievous, malignant, and destructive" (1883, p. 587). Clevenger also described the case of a 15-year-old boy who had developed homicidal tendencies; the child had stabbed his younger brother, was stubborn, and could not be controlled by his mother.

In the late 1800s, Emil Kraepelin, a prominent German nosologist, recognized that his patients frequently did not have any motives for their aberrant behavior (Kraepelin, 1896/translated by Barclay, 1971). Kraepelin reported that patients threw things on the floor, grabbed physicians, and stole things. He found that these assaults were totally impulsive. Kraepelin recorded that "a patient felt himself urged without any comprehensible motive to kill his sister, and stabbed her without more ado in the arm" (Kraepelin, 1896/1971, p. 115).

August Aichhorn was widely known for his application of psychoanalytic techniques to the problems of juvenile delinquents and child guidance. His classic book, Wayward Youth, was first published in Vienna

in 1925. After the German edition was revised, it was published in America in 1935 (Aichhorn, 1968). In his book, Aichhorn presented information about his experiences with children who had been referred to his child-guidance clinic or who had been placed in the corrective institution which he directed. Aichhorn observed that many of the children had delinquent tendencies. He described the case of a 13-year-old boy who was brought to the clinic by his mother. The woman complained about her son's misbehavior. She said that he had stolen money from the kitchen and had taken all the money in his sister's savings bank. He did not come home that night. When he came home, he was stubborn and sulky. Aichhorn wrote that "wayward youth" were not only delinquent and dissocial children, but were also "so-called problem children" (1968, p. 3).

In the last two decades of the nineteenth century, attempts were made to organize existing information on mental illness in children (Kanner, 1962). As a result, various publications appeared in the field which ranged from single case reports to elaborate texts. It was not until the 1930s that information pertaining to the diagnosis, etiology, treatment methods, and prognosis of children with severe emotional disturbances was studied. Thereafter, there was an awareness of the need to define variations in the onset, symptoms, and courses of disorders. Kanner noted that the term "emotionally disturbed children," (1962, p. 101) which had been widely

used since the 1900s, had not been clearly defined. He found it strange that a historical review of emotional disturbances of children predominantly focused on psychoses and schizophrenia. In the 1940s, two opposing trends were evident. The tendency of some researchers was to regress to the indefiniteness of the pre-Kraepelinian years. In contrast, other researchers were opposed to this lumping of diverse disorders into one classification. Kanner asserted that it was necessary to acknowledge the heterogeneity of the various conditions that identify emotionally disturbed children so that each disorder might be studied with more precision.

The earliest studies on the classification of antisocial patterns were conducted by Hewitt and Jenkins (1946). These researchers were among the first to utilize statistical techniques to examine antisocial behaviors among children and adolescents. Hewitt and Jenkins surveyed the case records of 500 children who had been referred to a child guidance clinic so that they might identify patterns of specific behavioral problems. As a result of this investigation, three major behavioral syndromes were identified: (a) unsocialized aggressive, (b) socialized delinquent, and (c) overinhibited behavior. The unsocialized aggressive pattern described "the behavior of a child who is defiantly aggressive toward others, who disregards their rights as fellow persons" (Hewitt & Jenkins, 1946, p. 27). A contrasting pattern was defined for the socialized delinquent who "gets along with other children of his own type ...engages in petty stealing from home or school...is

also extremely antagonistic toward school attendance" (Hewitt & Jenkins, 1946, p. 43). The first two syndromes are reflected in contemporary views of CD and its subtypes. The third type, overinhibited behavior, was rarely referred to in subsequent clinical literature.

A landmark attempt to categorize child behavior problems was undertaken by Peterson (1961). According to Dreger (1982), this investigation has been cited more frequently in the factor analytic literature than any other source. Peterson developed a two-factor model based on teachers' ratings of elementary school children. He named these factors, "conduct problem" and "personality problem" and said that they appeared to be fundamental dimensions of children's behavior. Although Peterson thought that these labels were inappropriate, he felt compelled to use them because they appeared to match Hewitt and Jenkins' (1946) categories of unsocialized aggression and overinhibited behavior.

Longitudinal studies have stressed the significance of conduct problems (Robins, 1966). A prominent survey by Glueck and Glueck (1960) examined special characteristics (e.g., child, parent, and family variables) of delinquent youth. Glueck and Glueck found that there were specific factors that identified juvenile delinquents and also predicted maladaptation of adult offenders. The first and most important factor was the permeative influence of certain components of family life that calculated responses to treatment in correctional schools, reformatories, and prisons. Some of the conclusions

made by these authors were: (a) methods of paternal and maternal discipline were correlated with the success of peno-correctional treatment; children whose parents exercised firm and reasonable discipline had a lower incidence of parole violations than those whose parents made harsh, unreasonable requests and demanded obedience through fear, (b) the lower the educational level of the parents of offenders, the greater the chance of misbehavior during treatment, and (c) offenders who experienced cooperation and affection among members of the immediate family and who had pride in their home were less likely to become juvenile delinquents. The second factor was the importance of childhood maladjustment in predicting later behavioral difficulties. Glueck and Glueck found that the earlier the age of onset of antisocial behavior, the higher the rate of failure under some type of peno-correctional treatment. They proposed that "the deep-rootedness of the antisocial behavioral manifestations exerts a continuing influence throughout the careers of delinquents and criminals" (Glueck & Glueck, 1960, p. 83). These distinguished researchers also found that in most cases "the poorer the intellect of offenders, the higher the failure score, both during and after various forms of peno-correctional treatment" (Glueck & Glueck, 1960, p. 84).

In the 1960s, Robins (1966) conducted a classic study and published the book Deviant Children Grown up - A Sociological and Psychiatric Study of Sociopathic Personality. Robins again studied about 500 patients who

had been referred to child guidance clinics for antisocial behaviors 30 years previously. Their adult status was compared with that of 100 normal controls. The results of the study suggested that psychiatric symptoms, criminal behaviors, and physical and social adjustment difficulties are long-term consequences of behavior problems during childhood and adolescence. Robins concluded that "childhood behavior disturbances, therefore, are important prognosticators of certain adult psychiatric illnesses" (1966, p. 89).

More recently, Quay (1993) found that Hewitt and Jenkins' (1946) major behavioral syndromes of undersocialized aggressive and socialized delinquent were repeatedly evidenced in statistical studies. He also accumulated evidence that pointed to differing personal, social, and biological correlates of these behavioral patterns. According to Quay, the principal characteristics of the undersocialized aggressive pattern included both physical and verbal aggressive acts (e.g., fighting, bullying, hitting), lack of self-control (e.g., temper tantrums, irritability), and impaired interpersonal relations (e.g., lying, dishonesty) with both peers and adults. The socialized syndrome was primarily related to delinquent activities (e.g., group stealing, truancy from home and school, and group drug use) that were generally carried out within a peer group. Although relations with adults might be impaired, close relations with peers and loyalties toward them were observed.

The work of Gerald Patterson (1982) sought to develop subtypes of CD by focusing on the salient or primary symptoms of children. Patterson distinguished between children whose main symptom was aggression from those whose primary symptom was stealing. He found that the aggressors engaged in significantly more aversive and coercive behaviors and were less compliant with parents' requests than the stealers. Patterson and colleagues outlined a developmental model of conduct-disordered behaviors (Patterson, DeBaryshe, & Ramsey, 1989). These prominent researchers also made an effort to explain how patterns of conduct problems develop in aggressive children. Based on a social learning model, intervention programs for families with aggressive children were introduced.

Loeber and Schmaling (1985) conducted a metaanalysis of 22 studies that examined the antisocial behavioral patterns of 11,603 boys and girls. The goal of the investigation was to empirically define the dimensions of antisocial behavior and to determine if a given antisocial behavior would load on the same factor as other childhood behavior problems. Based on statistical analyses, Loeber and Schmaling found that some children have profiles of conduct problems that are either mostly overt or covert in nature. They found support for a single bipolar scale. At one end of the dimension were symptoms such as abuses alcohol and/or drugs, runs away, steals, or sets fires. Since they tended to occur behind the backs of authority figures, they were labeled covert antisocial behaviors. At the other end of the scale

were confrontive symptoms such as hyperactivity, arguing, and attacks on people which were labeled overt antisocial behaviors.

Recently, Kazdin (1995) conducted extensive research on the topic of CD youth. In his noteworthy book, Conduct Disorders in Childhood and Adolescence (1995), Kazdin defined the term "conduct disorder" as "instances when the children or adolescents evince a pattern of antisocial behavior, when there is significant impairment in everyday functioning at home or school, or when the behaviors are regarded as unmanageable by significant others" (p. 1). Kazdin reserved the term conduct disorder to define "antisocial behavior that is clinically significant and clearly beyond the realm of normal functioning" (1995, p. 1). He found that most studies of conduct problems in children reflected a pattern involving verbal and physical aggressive actions. The behaviors were often associated with poor interpersonal relationships with adults and peers.

Kazdin (1995) also asserted that antisocial behaviors can be clearly distinguished from normal behaviors for various reasons. First, the frequency and intensity of the behaviors are paramount in determining whether or not the child should be identified as clinically impaired. The extent to which the child engages in behaviors such as fighting, intimidating others, or stealing should determine whether clinical attention is necessary. In some instances, such as firesetting, the important characteristic is the intensity or severity of the act. Second, the repetitiveness and persistence of the behaviors help to

define whether the child requires clinical attention. Third, the breadth of the behaviors is also critical; there are generally several behaviors that occur together and form a syndrome or constellation of symptoms. Kazdin noted that children are not likely to show all of the symptoms. Rather, the idea is that the symptoms generally come in packages. Fourth, youth who are in need of treatment display impairment in everyday functioning. Such children may have problems in school, may be unmanageable at home, or may commit dangerous acts against others. These characteristics are generally seen in combination when clinically severe levels of CD are identified.

Nosology of Conduct Disorder

In 1948, the sixth edition of the Manual of the International Statistical Classification of Diseases, Injuries, and Causes of Death (ICD-6) was published by the World Health Organization (WHO, 1948). ICD-6 included, for the first time, a classification of mental disorders. However, this nomenclature was generally not useful in the United States, mainly because of the absence of several mental disorders (Widiger, Frances, Pincus, Davis, & First, 1991). Due to a lack of uniform nosology, the American Psychiatric Association (APA) developed an alternative classification of mental diseases for use within the United States (Spitzer & Williams, 1985). In 1952, the first edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-I; APA, 1952) was introduced. This classification system is an outcome of the original psychiatric taxonomy developed by Kraepelin in

1883. Under the broad category of "personality disorders", the DSM-I listed antisocial reaction to refer to "chronically antisocial individuals who are always in trouble" (1952, p. 38). Dyssocial reaction was applied to individuals who "manifest disregard for the usual social codes" (1952, p. 38). The DSM-I also included the classification of "transient situational personality disorders" and listed conduct disturbance as a transient reaction that "manifests itself primarily as a disturbance in social conduct or behavior... may occur chiefly in the home, in the school, or in the community, or may occur in all three" (1952, p. 41). However, no special category was listed for children.

In 1966, the Group for the Advancement of Psychiatry (GAP), under the major category "disturbances in social behavior" listed aggressive and antisocial behaviors. Aggressive behaviors were subdivided into (1) externally directed behaviors (e.g., cruelty, destructive behavior, fighting) and (2) internally directed behaviors (e.g., accident-proneness, self-destructive behavior, self-mutilation). Under the CD category relating to conflicts with the environment, "defiance, rebellion, disobedience, tantrums, cruelty, destructiveness, hyperactivity, negativism, lying, stealing, precocious sex activity, timidity, withdrawal, and asocial behavior" were listed (GAP, 1974, p. 126).

The need for a differentiated classification of children's disorders was first recognized in the DSM-II (Achenbach, 1978). In the DSM-II, personality

disorders were described as "deeply ingrained maladaptive patterns of behavior that are perceptibly different in quality from psychotic and neurotic patterns. Generally, these are life-long patterns, often recognizable by the time of adolescence or earlier" (1968, p. 41). The major category of "behavior disorders of childhood and adolescence" was reserved for disorders that occurred in childhood and adolescence and included runaway reaction, unsocialized aggressive reaction, and group delinquent reaction. However, the DSM-II had only limited reliability and lacked operational criteria (Saigh, 1992). It was apparent that the second and third editions of the DSM (APA, 1968, 1980) were heavily influenced by the studies of Hewitt and Jenkins (1946).

With the advent of the DSM-III (APA, 1980), the diagnosis of syndromes and disorders was improved considerably (Kazdin, 1989). The number of categories specific to children was increased and efforts were made to provide operational diagnostic criteria rather than rely on general descriptions of the disorders. In the revision, CD was classified with oppositional disorder (OD) and attention deficit disorder (ADD) under the heading "infancy, childhood, or adolescence disorders." CD was the major category for diagnosing antisocial behavior in children and adolescents. The 1980 version was expanded to delineate four types of conduct disorders: (a) undersocialized aggressive, (b) socialized aggressive, (c) undersocialized nonaggressive, and (d) socialized nonaggressive. Children who met the

criteria for the aggressive types violated the rights of others by physical violence (e.g., fighting, theft involving confrontation with a victim). The nonaggressive types were characterized by the absence of physical violence and engaging in norm violations without confronting victims (e.g., truancy, running away, stealing without confronting a victim). Whereas the undersocialized types were characterized by a failure to display affection and empathy, the socialized types were able to establish attachments and relationships with others. A comparison of the criteria listed in the second and third editions of the DSM showed that there were differences in how specific symptoms were placed in categories. For example, the symptoms of lying and stealing were categorized under aggressive acts in DSM-II, but were placed with nonaggressive behaviors in DSM-III.

Researchers found, however, that the four subtypes of CD listed in the DSM-III appeared to be confusing and that the nonaggressive subtypes were rarely diagnosed. Also, evidence was mixed regarding whether or not the types were distinguishable and if they predicted different long-term patterns (Quay, 1993). Although extensive field trials of the DSM-III criteria had been conducted, experiences with the criteria showed "many instances in which the criteria were not entirely clear, were inconsistent across categories, or were even contradictory" (APA, 1987, p. xvii). In view of this, a work group was appointed by the APA to revise the DSM-III in 1983.

The DSM-III-R (APA, 1987) classified CD together with ODD and attention-deficit hyperactivity disorder (ADHD) under the subclass of "disruptive behavior disorders." The revision abandoned the four subtypes of CD specified in the DSM-III. Unlike its predecessor, the DSM-III-R presented three subtypes: (a) group type, (b) solitary type, and (c) undifferentiated type. The subtypes blended the characteristics of the undersocialized and socialized subtypes into a global category. This system was devised to emphasize the context in which the symptoms occurred. The description of the solitary aggressive subtype suggested physical or verbal aggression that was not part of a group activity. The group subtype was described as manifesting antisocial or aggressive behaviors mainly as part of a group of peers with similar problems. The undifferentiated type was reserved for children and adolescents with patterns of CD that did not fit easily into either of the other categories (Lewis, 1996). Diagnostic thresholds for CD were raised in the DSM-III-R; the milder symptoms were eliminated and the number of symptoms required for a diagnosis was increased to three.

The uses and attitudes of mental health professionals in 42 countries (not including the United States) toward the DSM-III and the DSM-III-R were surveyed by Maser, Kaelber, and Weise (1991). These authors reported that the DSM-III and the DSM-III-R were more extensively used throughout the

world than the ICD criteria for the purposes of teaching, research, and clinical practice.

In 1988, the APA began work to develop the fourth edition of the DSM. The Child Disorders Work Group conducted literature reviews, data reanalyses, and field trials and relied on empirical data to support the revisions (Widiger, Frances, Pincus, Davis, & First, 1991). A three-stage process was utilized to maximize empirical support for any changes that were to be made and to minimize subjectivity and bias. The DSM-IV lists the psychiatric classification of CD under the broader category of "disruptive behavior disorders" that includes ADHD and ODD. The DSM-IV states that ADHD is common in CD subjects and when criteria are met for both ADHD and CD, both diagnoses should be given. However, when the pattern of behavior meets the criteria for both CD and ODD, the diagnosis of CD takes precedence and ODD is not diagnosed.

In the DSM-IV (APA, 1994), the definition of CD encompasses a broad range of disruptive, defiant, and sometimes even dangerous behaviors among children and adolescents. In this revision, the definitions of CD are somewhat better than they were in the DSM-III-R in terms of internal consistency and test-retest reliability (Lahey et al., 1994). The DSM-IV criteria list for CD was expanded by adding two items that were not listed in the DSM-III-R: "often bullies, threatens, or intimidates others" (1994, p. 90) and "often stays out late at night despite parental prohibitions, beginning

before age 13 years" (1994, p. 90). The addition of these symptoms was based on results of field trials that suggested that these behaviors were highly predictive of the diagnosis of CD (Frick et al., 1994). Further, the DSM-III-R symptom that a child often lies was modified to refer to lying that was intended to "con" others and the DSM-IV symptom of truancy was limited to truancy that begins prior to 13 years of age.

The time frame during which symptoms must occur was also revised in the DSM-IV. Whereas the DSM-III-R criteria stated that three or more symptoms must occur during a period of six months, the DSM-IV criteria require the presence of at least three symptoms within the past 12 months and the presence of at least one symptom in the past 6 months. In addition, the DSM-IV item list is divided into four thematic subgroups: (a) aggression to people and animals, (b) destruction of property, (c) deceitfulness or theft, and (d) serious violation of rules.

The DSM-IV distinguishes between two types of CD that are based on age of onset rather than behaviors: (a) childhood-onset type requires three of the listed behaviors with at least one occurring before ten years of age and (b) adolescent-onset type specifies an absence of any of these behaviors before ten years of age. This distinction was made because the prognosis is especially poor for those children whose antisocial behaviors start before the age of ten years (Kazdin, 1995). Clinicians are also required to specify the degree of severity of the disorder (i.e., mild, moderate, or severe). Also listed

are associated descriptive features and mental disorders such as "little empathy and little concern for the feelings, wishes, and well-being of others" (APA, 1994, p. 87). The DSM-IV asserts that aggressive individuals often appear to misperceive the actions of others as being more hostile than was intended and, therefore, they respond in an aggressive manner. Furthermore, CD may be associated with lower than average intelligence. Academic achievement, particularly in reading and other verbal skills, is often below expectations and may justify an additional diagnosis of a learning or communication disorder. Gender differences are also found in specific types of conduct problems. Whereas males frequently exhibit symptoms such as fighting, stealing, vandalism and school problems, females are more likely to exhibit symptoms such as lying, truancy, running away, and prostitution. Table 1 provides the criteria for establishing a DSM-IV diagnosis of CD.

Table 1

DSM-IV Diagnostic Criteria for Conduct Disorder

A. A repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated, as manifested by the presence of three (or more) of the following criteria in the past 12 months, with at least one criterion present in the past 6 months:

Aggression to people and animals

(1) often bullies, threatens, or intimidates others

(2) often initiates physical fights

(3) has used a weapon that can cause serious physical harm to others (e.g., a bat, brick, broken bottle, knife, gun)

(4) has been physically cruel to people

(5) has been physically cruel to animals

(6) has stolen while confronting a victim (e.g., mugging, purse snatching, extortion, armed robbery)

(7) has forced someone into sexual activity

(table continues)

Destruction of property

(8) has deliberately engaged in fire setting with the intention of causing serious damage

(9) has deliberately destroyed others' property (other than by fire setting)

Deceitfulness or theft

(10) has broken into someone else's house, building, or car

(11) often lies to obtain goods or favors or to avoid obligations (i.e., "cons" others)

(12) has stolen items of nontrivial value without confronting a victim (e.g., shoplifting, but without breaking and entering; forgery)

Serious violations of rules

(13) often stays out at night despite parental prohibitions, beginning before age 13 years.

(14) has run away from home overnight at least twice while living in parental or parental surrogate home (or once without returning for a lengthy period)

(15) is often truant from school (beginning before 13 years)

(table continues)

Subtypes: Based on age at onset:

Childhood-Onset Type: onset of at least one criterion characteristic of Conduct Disorder prior to age 10 years

Adolescent-Onset Type: absence of any criteria characteristic of Conduct Disorder prior to age 10 years

Severity:

Mild: few if any conduct problems in excess of those required to make the diagnosis **and** conduct problems cause only minor harm to others

Moderate: number of conduct problems and effect on others intermediate between "mild" and "severe"

Severe: many conduct problems in excess of those required to make the diagnosis **or** conduct problems cause considerable harm to others

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Note: Criteria from the American Psychiatric Association: Diagnostic and statistical manual of mental disorders, Fourth Edition. Washington, DC: American Psychiatric Association, 1994. Reprinted by permission. (See Appendix A).

The APA was also asked to provide recommendations for the development of the mental disorders chapter of the ICD-10 (WHO, 1993) since the publication of the ICD-10 was to coincide with the DSM-IV. In the ICD-10, CD is a broad category that includes three types of CD: (1) conduct disorder confined to the family context, (2) unsocialized conduct disorder, and (3) socialized conduct disorder. The definitions of CD are broadly similar in both the DSM-IV and the ICD-10. Specifically, the diagnostic criteria for CD for both classification systems: (1) list similar symptoms, (2) recommend that the age of onset should be specified, and (3) recommend that the severity of CD (i.e., mild, moderate, or severe) should be indicated. The major differences between the ICD-10 and the DSM-IV definitions of CD pertain to how the CD subtypes are specified. Although the ICD-10 retains the distinction between socialized and unsocialized CD, this distinction was abandoned in the DSM-III-R. The ICD-10 also lists mixed disorder of conduct and emotions: (1) depressive conduct disorder, (2) other mixed disorders of conduct and emotions, and (3) mixed disorder of conduct and emotions, unspecified. Viewed along these lines, Table 2 provides diagnostic criteria and some of the diagnostic guidelines of the ICD-10 criteria for CD.

Table 2

ICD-10 Diagnostic Criteria for Conduct Disorder

F91 Conduct Disorders

There is a repetitive and persistent pattern of behaviour, in which either the basic rights of others or major age-appropriate societal norms or rules are violated, lasting at least 6 months, during which some of the following symptoms are present (see individual subcategories for rules or numbers of symptoms).

Note: The symptoms in 11, 13, 15, 16, 20, 21, and 23 need only have occurred once for the criterion to be fulfilled.

The individual:

1. has unusually frequent or severe temper tantrums for his or her developmental level;
2. often argues with adults;
3. often actively refuses adults' requests or defies rules;
4. often, apparently deliberately, does things that annoy people;
5. often blames others for his or her own mistakes or misbehaviour;
6. is often "touchy" or easily annoyed by others;
7. is often angry or resentful;

(table continues)

8. is often spiteful or vindictive;
9. often lies or breaks promises to obtain goods or favours or to avoid obligations;
10. frequently initiates physical fights (this does not include fights with siblings);
11. has used a weapon that can cause serious physical harm to others (e.g. bat, brick, broken bottle, knife, gun);
12. often stays out after dark despite parental prohibition (beginning before 13 years of age);
13. exhibits physical cruelty to other people (e.g. ties up, cuts, or burns a victim);
14. exhibits physical cruelty to animals;
15. deliberately destroys the property of others (other than by firesetting);
16. deliberately sets fires with a risk or intention of causing serious damage;
17. steals objects of non-trivial value without confronting the victim, either within the home or outside (e.g. shoplifting, burglary);
18. is frequently truant from school, beginning before 13 years of age;

(table continues)

19. has run away from parental or parental surrogate home at least twice or has run away once for more than a single night (this does not include leaving to avoid physical or sexual abuse);
20. commits a crime involving confrontation with the victim (including purse snatching, extortion, mugging);
21. forces another person into sexual activity;
22. frequently bullies others (e.g. deliberate infliction of pain or hurt, including persistent intimidation, tormenting, or molestation);
23. breaks into someone else's house, building, or car.

It is recommended that the age of onset be specified:

Childhood Onset Type: onset of at least one conduct problem before the age of 10 years;

Adolescent Onset Type: no conduct problems before the age of 10 years.

Specification for possible subdivisions

Authorities differ on the best way of subdividing the conduct disorders, although most agree that the disorders are heterogeneous. For determining prognosis, the severity (indexed by number of symptoms) is a better guide than the precise type of symptomatology. The best-validated distinction is that between socialized and unsocialized disorders, defined by the presence or absence of lasting peer friendships. However, it seems that

(table continues)

disorders confined to the family context may also constitute an important variety, and a category is provided for this purpose. In addition to these categorizations, it is recommended that cases be described in terms of their scores on three dimensions of disturbance:

1. hyperactivity (inattentive, restless behaviours);
2. emotional disturbance (anxiety, depression, obsessionality, hypochondriasis); and
3. severity of conduct disorder:
    a. mild: few, if any conduct problems are in excess of those required to make the diagnosis, and conduct problems cause only minor harm to others;
    b. moderate: the number of conduct problems and the effects on others are intermediate between "mild" and "severe";
    c. severe: there are many conduct problems in excess of those required to make the diagnosis, or the conduct problems cause considerable harm to others (e.g. severe physical injury, vandalism, or theft).

F91.0 Conduct Disorder Confined To the Family Context

A. The general criteria for conduct disorder (F91) must be met.

B. Three or more of the symptoms listed for F91 criterion G1 must be present, with at least three from items (9) - (23).

(table continues)

C. At least one of the symptoms from items (9) - (23) must have been present for at least 6 months.

D. Conduct disturbance must be limited to the family context.

F91.1 Unsocialized Conduct Disorder

A. The general criteria for conduct disorder (F91) must be met.

B. Three or more of the symptoms listed for F91 criterion G1 must be present, with at least three from items (9) - (23).

C. At least one of the symptoms from items (9) - (23) must have been present for at least 6 months.

D. There must be definitely poor relationships with the individual's peer group, as shown by isolation, rejection, or unpopularity, and by a lack of lasting close reciprocal friendships.

F91.2 Socialized Conduct Disorder

A. The general criteria for conduct disorder (F91) must be met.

B. Three or more of the symptoms listed for F91 criterion G1 must be present, with at least three from items (9) - (23).

C. At least one of the symptoms from items (9) - (23) must have been present for at least 6 months.

Note: Criteria from the World Health Organization (1993). The ICD-10 classification of mental and behavioural disorders. Geneva. Reprinted by permission. (See Appendix B).

Prevalence of Conduct Disorder

Conduct disorder represents a major clinical and social problem among children and adolescents; one-third to one-half of all child and adolescent clinic referrals are related to conduct problems, antisocial behaviors, and aggressiveness (Kazdin, 1987). Analogously, the DSM-IV reads as follows: "Conduct Disorder is one of the most frequently diagnosed conditions in outpatient and inpatient mental health facilities for children" (APA, 1994, p. 88).

Robins (1991) reported that conduct problems tend to be relatively stable over time. He found that when children consistently display patterns of antisocial behaviors, they generally do not grow out of them. The cycle continues as children who demonstrate aggressive behaviors are likely to have offspring who display similar behaviors (Huesmann, Eron, Lefkowitz, & Walder, 1984). When behaviors are severe, children often require mental health services in clinics or hospitals or they may be involved with the criminal justice system (Kazdin, 1995). In the educational system, special classes and specially trained teachers are often needed to provide services for these children. Also, CD is one of the most costly psychiatric disorders to society. In 1986, the United States government spent more than $1 billion per year to maintain our juvenile justice system and approximately one-half billion dollars is spent yearly on school vandalism (Patterson, De Baryshe, & Ramsey, 1989).

It is difficult to estimate the prevalence of childhood psychiatric disorders because the populations sampled, the diverse methods for assessing disorders, and case definitions significantly impact upon results (Brandenburg, Friedman, & Silver, 1989). Similarly, the DSM-IV (APA, 1994) reports that the prevalence of CD varies according to the population sampled and the methods of obtaining data; rates of CD range from 6% to 16% for males and from 2% to 9% for females. Rates may be higher in urban than in rural settings.

Methodological problems in the epidemiology of childhood psychopathology were addressed in a paper by Gould, Wunsch-Hitzig, and Dohrenwend (1981). These authors pointed out that one of the major problems in providing accurate prevalence estimates has to do with the fact that it is difficult to define the term "psychiatric disorders." Although newer classification systems have greatly elaborated and more clearly defined the childhood categories, the problem of defining the disorders has not been satisfactorily resolved. In a similar context, Doll (1996) stated that the methodological quality of epidemiological investigations is dependent upon two main criteria. First, the sample used in an epidemiological study should be representative of the community. Second, studies must accurately distinguish between cases and non-cases of psychiatric disorders. A reliable identification can be made when (1) a standard diagnostic instrument

defining the psychiatric disorder is utilized, and (2) there are reliable means for deciding when subjects meet the criteria of disorders.

There are also inherent problems in comparing prevalence rates from studies that use heterogeneous methods and concepts (Anderson, Williams, McGee, & Silva, 1987). According to Kazdin (1987), prevalence rates are exceptionally high on self-report measures. When youth (13 to 18 years old) report their activities "more than 50% admit to theft, more than 35% admit to assault, more than 45% admit to property destruction, and more than 60% admit to engaging in more than one type of antisocial behavior" (Kazdin, 1987, p. 187).

The rates of conduct problems may vary considerably according to geographical areas. A prominent study by Rutter, Cox, Tupling, Berger, and Yule (1975) examined the prevalence rates of psychiatric disorders in two geographical regions that had fairly similar social compositions, but very different living conditions. Standardized questionnaires (Graham & Rutter, 1968) were used to assess the presence or absence of psychiatric disorders. For the ten-year-old children living on the Isle of Wight, the prevalence rate of CD applied to 2.2% of the participants. In a survey of similar-aged children from Inner London, a higher rate of 3.5% was obtained. The authors determined that ten-year-old children living in the Inner London Borough showed more behavioral deviance than did Isle of Wight children of

the same age. The higher rate applied to both boys and girls and was not specific to the borough studied.

Another important factor that must be taken into consideration when reporting prevalence rates of psychiatric disorders is that rates change when different diagnostic thresholds are used (Lahey et al., 1994). For example, in the DSM-III definition of CD, a diagnostic threshold of one symptom was listed. In the DSM-III-R, the diagnostic threshold for CD was raised by eliminating the milder symptoms and increasing the number of symptoms required for a diagnosis of CD. Viewed in this context, Lahey et al. (1990) assigned DSM-III and DSM-III-R diagnoses to 177 boys aged 7 to 12 years. Compared to their DSM-III counterparts, the rate of CD decreased considerably when DSM-II-R were used (44.3% fewer boys met the criteria for CD). The requirement of the presence of three symptoms for a diagnosis of CD was supported in the DSM-IV field trials (Lahey et al., 1994).

Age and gender differences are among the most fundamental epidemiological data that can be obtained. In a classic study by Robins (1966), 57% of deviant boys had an onset of CD before the age of 10 (median = 7 years). For girls, the onset of antisocial behavior was highest in the 14- to 16-year-old range (median = 13 years). Robins also reported gender differences in symptom patterns. Whereas boys were more often referred for theft and aggressive behaviors, girls' symptoms generally included sexual misbehavior. Girls also reported a later onset of conduct

problems. When predicting which subjects would most likely be diagnosed as having sociopathic personalities, Robins found that boys who had a history of truancy, theft, staying out late, and refusing to obey their parents were the most likely candidates.

A noteworthy review by Rey (1993) surveyed epidemiological studies that were conducted in the United States (according to the DSM III and the DSM-III-R criteria) and examined the prevalence rates and gender ratios of youth from 4 through 18 years of age (see Table 3). Only community samples were included in this survey since Rey asserted that clinical samples may be distorted due to bias in referral and treatment methods. Rey found that prevalence rates of CD ranged from 1.5% (Bird et al., 1988) to 8.7% (Kashani et al., 1987). In most studies, CD was diagnosed more often in boys of all ages. Rey further observed that age variations reflected interesting patterns; results of most studies consistently demonstrated that CD becomes more prevalent during adolescence.

Table 3

Rates and Gender Ratios of CD

Author	Diagnostic measure	Age (years)	No. of youth	% of CD youth	Ratio boys/girls
Cohen et al.	DISC	9-12	775	4.0	-----
(1987)	DISC-P	13-18		6.0	3:1
Kashani et al.	DICA-P	14-16	150	8.7	1.2:1
(1987)	CBP				
Anderson et al.	DISC-C	11	792	3.4	3.2:1
(1987)	Rutter "A"				
Bird et al.	DISC (Span)	14-16	386	1.5	----
(1988)	CBCL				
Offord et al.	SDI (P)	4-11	1,428	.9	3.5:1
(1989)	(T/Y)			3.4	2.6:1
	(P)	12-16	1,231	2.8	2.1:1
	(T/Y)			5.1	2.5:1

(table continues)

Author	Diagnostic measure	Age (years)	No. of youth	% of CD youth	Ratio boys/girls
Mc Gee et al. (1990)	DISC-C RBPC	15	943	7.3	1:1
Esser et al. (1990)	Structured Interviews	8	216	.9	1.9:0
		13	191	4.2	1.3:1
Cohen et al. (1993)	DISC-1	10-13	55	9.9	4.2:1
		14-16	63	12.5	1.7:1
		17-20	37	8.3	1.3:1

Patterns of CD have also been identified in cultures outside the United States. A statistical survey in Great Britain (Collins, Maxwell, & Cameron, 1962) examined children between eight and ten years of age who had been referred to a hospital for various psychiatric problems. These authors found slightly different results for boys and girls. Whereas symptom patterns of lying, stealing, destructiveness, and fighting were broadly similar for both genders, boys also exhibited behaviors such as truancy and disobedience.

Analyzing data from a longitudinal study of children aged 9 to 18 years, Cohen, Velez, Kohn, Schwab-Stone, and Johnson (1987) divided the participants into two groups (9 - 12 years and 13 - 18 years). Information was combined from modified child and parent versions of the Diagnostic

Interview Schedule for Children (DISC-C and DISC-P; Costello, Edelbrock, & Costello, 1985). As presented in Table 3, CD was diagnosed in 4.0% of the individuals in the younger group; the ratio of boys to girls was not reported. In the older group, the rate of CD rose to 6%; the ratio of boys to girls was 3:1.

A noteworthy study by Kashani et al. (1987) assessed the prevalence of psychiatric disorders in a community sample of 150 adolescents who ranged in age from 14-16 years (see Table 3). Structured interviews which included the Diagnostic Interview for Children and Adolescents (DICA: Herjanic & Reich, 1982) and other instruments such as the Child Behavior Profile (Achenbach, 1979) were used to collect data. These authors decided to accept as "cases" those adolescents who not only met the criteria for a disorder, but who were also in need of clinical treatment (which may account for the high rate of CD). Of the 150 participants, approximately 8.7% met criteria for CD (9.3% for boys and 8.0% for girls); the ratio of boys to girls was 1.2:1.

The prevalence of DSM-III disorders in 11-year-old children from the general population was investigated by Anderson, Williams, McGee, and Silva (1987). The DISC-C was used to interview children. Teachers completed the Rutter Child Scale A (McGee et al., 1985) and other items relating to childhood disorders. Consistent with results obtained by Cohen et al. (1987), this study estimated that a diagnosis of CD applied to

approximately 3.4% of the participants; the ratio of boys to girls was 3.2:1 (Table 3). All of the children with CD were found to be aggressive and had more than one socialized symptom.

In Puerto Rico, Bird and colleagues (1988) surveyed 386 children who ranged in age from 4 through 16 years (Table 3). Clinical assessment measures included the Spanish translation of the DISC and the published *cutoff points of the Child Behavior Checklist (CBCL; Achenbach & Edelbrook,* 1983). Psychiatrists also scored each child on the Children's Global Assessment Scale (CGAS; Endicott, Spitzer, & Fleiss, 1976). Results indicated that 1.5% of the children met criteria for CD. These authors concluded that CD does not appear until early adolescence and is more commonly found in males. Therefore, the overall CD rate obtained in this study for a population aged 4 through 16 years may be an underestimation. Based on additional data for only 13- to 16-year-old males, a higher prevalence rate of 3.7% was obtained.

Socioeconomic disadvantage and living in deprived neighborhoods are two of the factors related to the development and/or maintenance of conduct problems (Prinz & Miller, 1991). Studies have supported the finding that children who meet the criteria for CD are more likely to be from families of lower socioeconomic status (SES; Robins, 1966). In this context, Lahey et al. (1988) examined the biological parents of 86 outpatient children (6 to 13 years of age). Both the children and parents were interviewed. Decisions

concerning the presence or absence of the DSM-III symptoms were made on the basis of a combination of sources, which included an updated version of the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS; Puig-Antich & Chambers, 1978) and the Conners' Teacher Rating Scale (Conners, 1969). Lahey and colleagues found that participants who met the criteria for CD tended to come from families of lower SES. Furthermore, data confirmed the association of childhood CD and parental psychopathology and substance abuse. However, Lahey and colleagues pointed out that differences in SES suggest potential threats to the validity of their conclusions in this study and stated, "It is possible, therefore, that the greater antisocial behavior of the parents and of the children are products of low SES and are not causally related to one another" (1988, p. 169). These authors, therefore, suggested that future studies should take into account the potentially confounding effects of SES.

Kolvin, Miller, Fleeting, and Kolvin (1988) capitalized on a rare opportunity to study criminality across generations. In a follow-up study of the families who participated in the Newcastle Thousand Family Survey in England (Miller, Court, Walton, & Knox, 1960), Kolvin and colleagues examined criminal records to determine whether children who grew up in deprived rather than nondeprived families were more at risk for criminal offenses in later years. Results indicated that all types of offenses tended to be correlated with the severity of deprivation (particularly true of theft).

When data were analyzed according to the degree and type of deprivation, the rate of criminality was 6.3% for the non-deprived group. For the deprived group who met one or two criteria of deprivation, the rate rose to 19.2% and was even higher (29.2%) for the multiply deprived group. In the base cohort of 847 families (149 offenders), the offense rate for children 15 years and under was 10.2%. In the 15 to 33 year age range, the rate rose to 15.9%. Kolvin and colleagues also noted that anytime up to 33 years of age, the rate of criminality was 18.3%. When the mean number of offenses committed by males from 10 to 33 years of age was reported, a clear picture emerged: rates were low during pre-puberty (10 - 11 years), they rose substantially through the teens (13 to 19 years) and peaked at 16 - 17 years. Thereafter, the rates decreased; at 32-33 years, rates were similar to those of the 10-11 year olds.

Prevalence rates may also vary according to the informant who supplied the information. Rutter and Graham (1968) found that when teachers and parents assessed children's disorders, there were significant differences as to which children were considered maladjusted. A study by Offord, Boyle, and Racine (1989) estimated the prevalence of four childhood psychiatric disorders among children (aged 4 to 16 years) in Ontario, Canada. The six-month prevalence rates of psychiatric disorders were presented according to age and informant. The CBCL was used to supply the basic items for a checklist which was termed the Survey Diagnostic

Instrument. As presented in Table 3, Offord and colleagues found that in the 4- to 11-year old group, the rate of CD for parent-identified youth was 1.4% for boys and 0.4% for girls (overall rate was .9%). CD rates rose to 4.9% for boys and 1.8% for girls in teacher or youth identified cases (overall rate was 3.4%). In the 12 to 16 year age span, all CD rates were higher; when parents were informants, rates of CD were 4.0% for boys and 1.9% for girls (overall rate was 2.8%). CD rates increased to 7.2% for boys and 2.9% for girls (overall rate was 5.1%) when identified by teacher or youth. Taken in toto, data indicated that for both age groups, the prevalence rates of CD for teacher or youth-identified cases were higher than those of parent-identified cases. Consistent with results of other studies, CD was much more common in boys than in girls regardless of age and informant.

An interesting comparison of the prevalence rates of DSM-III disorders was provided by McGee et al. (1990). These investigators reexamined youth at 15 years of age that Anderson et al. (1987) had studied when they were 11 years old. An abbreviated version of the DISC-C was administered and parents completed the Revised Behavior Problem Checklist (RBPC; Quay & Peterson, 1987). Using scales developed by Armsden and Greenberg (1987), the parent and peer attachment of the adolescents was measured. The participants also answered questions concerning their social competence and strengths. Aggressive CD and nonaggressive CD were differentiated according to different kinds of symptoms. Data indicated that nonaggressive

CD was the second most prevalent disorder. As shown in Table 3, in comparison with the 3.4% rate of CD obtained by Anderson and colleagues, McGee et al. observed that the rate of CD rose to 7.3% and was equally as prevalent in boys and girls. The severity of the disorder was also judged according to the number of symptoms that were present: 31 participants were identified with mild CD, 13 participants with moderate CD, and 10 participants with severe CD. About 50% of the adolescents reported some contact with the police. Interestingly, more girls than boys reported nonaggressive CD, especially in the severe category.

In Germany, Esser, Schmidt, and Woerner (1990) used the ICD-9 criteria (WHO, 1975) to examine the prevalence rates of psychiatric disorders of 216 children at age 8. Of that sample, 191 participants were reexamined during adolescence at age 13. Highly structured parent interviews (adapted from Graham & Rutter, 1968) were administered to parents during both phases of the study. At age 13, child interviews were also conducted. Diagnoses were made by experts and the severity of the disorders were judged on a four-point scale ranging from "0" for undisturbed to "3" for severely disturbed subjects. Five different psychiatric categories were identified, two of which were (1) CD associated with emotional problems, and (2) antisocial and conduct disorders excluding emotional problems. It is interesting to note that at age 8, relatively few cases of CD and antisocial disorders were discovered for boys and not even one girl

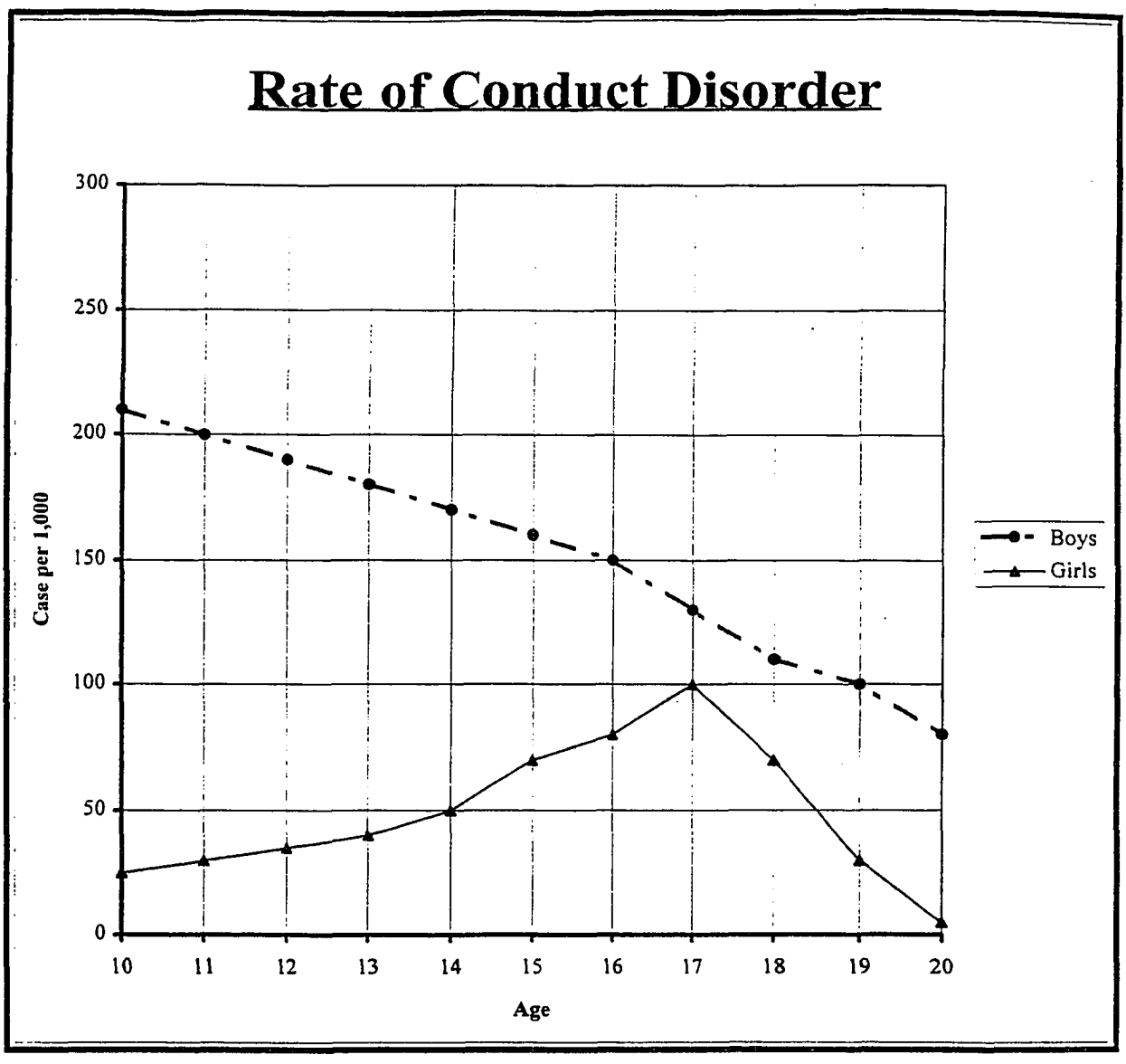
received the high severity score of 3. As shown in Table 3, CD prevalence rates were quite low for the 8-year-old group. Whether or not CD was associated with emotional problems, rates were identical: 1.9% for boys, 0% for girls (overall rate was 0.9%). Consistent with results of studies undertaken in the United States (Cohen et al., 1987), rates of CD increased during adolescence. At age 13, the rates of CD associated with emotional problems were 3% for boys and 2% for girls (overall rate was 2.6%). For antisocial and CD excluding emotional problems, rates were 6% for boys and 5% for girls (overall rate was 5.8%). The most striking difference in this study was the increase of CD in girls at age 13. When individual symptoms were listed according to gender and severity levels, lying was found to be quite prevalent at ages 8 and 13. Disciplinary trouble at school and alcohol abuse were frequently diagnosed at 13 years of age (rates were similar for both boys and girls).

An epidemiological study by Cohen et al. (1993) examined age trends in the prevalence of several childhood disorders in a general population sample of 10- to 20-year-olds (see Table 3). The measures used in this study included the DISC-1 (Costello, Edelbrock, Dulcan, Kalas, & Klaric, 1984). Overall, the rates of CD were twice as prevalent in boys as in girls. In the youngest group (10 - 13 years), 3.8% of the girls and 16.0% of the boys met diagnostic criteria for CD (overall rate was 9.9%); rates of CD were more than four times higher for boys. Within the 14 to 16 year age span,

the rates were 9.2% for girls and 15.8% for boys (overall rate was 12.5%). It is interesting to note that for the 14 to 16 year old group, the rate rose substantially for girls and the rate for boys was slightly lower. With increased age (17 - 20 years), the overall CD rate decreased to 8.3% (7.1% for girls, 9.5% for boys). However, as shown in Figure 1, the shapes of the prevalence curves for boys and girls were significantly different. For example, these authors noted that the youngest group of boys (10 to 13 years) had the highest prevalence rates of CD and that rates steadily declined to age 20. Meanwhile, the prevalence rates of CD among 14- to 16-year-old girls were more than two times higher than previously reported. Kazdin (1989) also reported that CD for both genders seems to reach a peak in adolescence and tends to decrease between the ages of 20 to 25 years.

More recently, a four-year longitudinal study of 171 boys who had been referred to a university outpatient clinic for disruptive behavior disorders was completed by Lahey et al. (1995). The participants ranged in age from 7 to 12 years at the time of the first annual assessment (mean age was 9.5 years). Using the DISC-C and the DISC-P, the youth, his parent, and his teacher were interviewed annually for a period of four years. The total number of boys who met criteria for CD were: 65 (year 1), 48 (year 2), 55 (year 3), and 53 (year 4). Approximately 50% of the subjects who were diagnosed as CD in year 1 met criteria for CD during the following year.

Figure 1



Cohen, P., Cohen, J., Kasen, S., Velez C., Hartmark, C., Jaohnson, J., Rojas, M., Brook, J., & Streuning, E. (1993). An epidemiological study of disorders in late childhood and adolescence - I. Age and gender specific prevalence. Journal of Child Psychology and Psychiatry, 34(6), 851-867.

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However, 88% met the criteria for CD in at least one subsequent year and generally more than once. Interestingly, almost none of the boys were completely free of any CD symptoms and approximately half were only one symptom below the threshold required for a diagnosis of CD. Of the 65 boys who met the criteria for CD in the first year, a significant number were more likely to be from lower SES families.

Juvenile delinquency is a serious and costly problem that is detrimental to the well-being of families and communities (Zigler, Taussig, & Black, 1992). The term delinquency is a legal term and is based on official contact with the courts (Kazdin, 1995). It is used to refer to a juvenile (usually under 18) who has committed a crime. It is important to note that classifications of CD and delinquency may overlap. Youth who meet criteria for CD do not necessarily engage in behaviors that are defined as delinquent since they may or may not have contact with the police. On the other hand, youth who display severe antisocial behaviors may be referred to the courts and labeled as delinquents (Kazdin, 1995).

Delinquent behaviors include index offenses and status offenses (Kazdin, 1995). Index offenses are illegal if committed by an adult and include acts such as homicide and robbery. Status offenses involve behaviors such as truancy and using alcohol, which would not be crimes if the youth were of age. Some of the index and status offenses such as firesetting and truancy are included in the DSM diagnosis of CD, while other

behaviors such as selling drugs and prostitution are not. Furthermore, the term delinquency does not have a standard or fixed definition since the specific acts that are considered illegal may vary according to the laws of the state or country in which the acts are committed. According to the U. S. Bureau of Census (1996), juvenile arrests have risen since 1980 (see Table 4); striking increases have been noted in violent crimes (murder and aggravated assaults have more than doubled), weapon law violations, and drug abuse.

Table 4

Juvenile Arrests: 1980 and 1994

(juveniles are persons between the ages 10 - 17)

Offense	1980	1994
Population covered (1,000)	169,439	208,035
Violent crime (total)	77,220	125,141
Murder	1,475	3,114
Forcible rape	3,668	4,873
Aggravated assault	33,548	70,108
Weapon Law Violations	21,203	52,278
Drug Abuse (total)	86,685	124,931
Possession of drugs	73,681	92,185

Source: U.S. Federal Bureau of Investigation. Crime in the United States, annual.

U.S. Bureau of the Census, Statistical Abstract of the United States: 1996 116th edition). Washington, DC, 1996. Public document may be reprinted without legal restriction (see Appendix D).

Academic Deficiencies and Cognitive Impairments Among CD Youth

CD youth have exhibited academic deficits and cognitive impairments when assessed with diverse measures of intellectual abilities and school performance (Frick, Lahey, Kamphaus, et al., 1991; Kazdin, 1995). Longitudinal data have shown that poor school achievement is an essential component of the causal link between disruptive behavior in Grade 1 and a delinquent personality at age 14 (Tremblay et al., 1992). However, it is important to note that delinquency is not a psychiatric disorder. The essential feature of a DSM-IV diagnosis of CD is a "repetitive and persistent pattern of behavior" (APA, 1994, p. 85). Three (or more) criteria are required during the past year, and at least one criterion must have been present in the past six months. In contrast, even though one delinquent act might lead to arrest, this offense would not be sufficient to warrant a psychiatric diagnosis of CD (Kazdin, 1995). However, statistical studies have clearly indicated that most of the major criteria of CD are found among juvenile delinquents (Quay, 1993).

The discrepancy between Verbal IQ scores and Performance IQ scores and the subtest scatter of the scores of delinquents were examined by Ollendick (1979). The participants in this study were 121 incarcerated male juvenile delinquents (13 to 16 years of age). Parental occupations and the average grade-level achievement scores were recorded. Ollendick did

not determine if participants met criteria for CD nor did he attempt to control for comorbid psychiatric conditions. The delinquents completed the Wechsler Intelligence Scale for Children-Revised (WISC-R; Wechsler, 1974).

Data obtained by Ollendick revealed that 75% of the delinquents had higher Performance IQ scores; the average Verbal-Performance discrepancy was 8.50 points. The summary statistics revealed a significant relationship between delinquency and Verbal-Performance discrepancies (favoring the Performance IQ scores); 33.9% had a significant Verbal-Performance discrepancy at the $p < .05$ level of significance and 20.7% had a significant Verbal-Performance discrepancy at the $p < .01$ level of significance. Although a control group was not included in this study, Kaufman (1976) had previously found that a 15-point discrepancy between the scores obtained on the Verbal and Performance scales occurred for one out of every four children (25%) in a standardization sample. It is interesting to note that the participants in Ollendick's study achieved the lowest mean WISC-R scaled scores on subtests that tapped long-term memory (i.e., Information, Vocabulary) and short-term memory (i.e., Coding). While the results of Ollendick's study present an interesting perspective on the intellectual functioning of delinquents, it is not certain if these results can be generalized to CD youth.

A worthwhile study by Even, Kipper, and Yehuda (1988) examined the recall abilities of 132 Israeli adolescent male juvenile delinquents (aged

14 to 17) and 50 nondelinquents. Even and associates did not determine whether or not subjects met criteria for CD nor did they try to report or control for comorbidity. The boys were presented with figure "A" of the Bender-Gestalt Test (Bender, 1938). One group copied the figures in regular sequence with figure A first and another took the test with figure A last. The results revealed that the delinquents who were administered figure A first demonstrated the lowest recall rate (22%). In contrast, the nondelinquents in the same group had a 70% recall rate. Overall, whether figure A was shown first or last, the delinquents' recall scores were below the norm and considerably lower than the recall scores of nondelinquents. As in Ollendick's (1979) study, it is not known if these results can be generalized to CD youth.

Culberton, Feral, and Gabby (1989) analyzed the WISC-R profiles of 82 delinquent boys (aged 13-16). These authors did not determine if the boys met criteria for CD or other comorbid disorders. Consistent with the results reported by Ollendick (1979), Culberton and colleagues found that delinquents received the lowest scores on the WISC-R subtests that were related to memory (i.e., Information, Vocabulary, and Coding). Specifically, whereas the mean scores on the Information, Vocabulary, and Coding subtests were 7.4 or less, mean scores on all other subtests ranged from 8.2 to 10.0. In addition, Culberton et al. listed seven Supplementary Scores that had interpretable value when the subtest scores differed significantly from

the overall scores or specific other scores. Memory was one of the supplementary factor scores estimated in this investigation and was said to measure a "subject's capacity to reproduce or recall in either verbal or written form, knowledge or symbols to which he has been exposed" (Culberton et al., 1989, p. 654). A factor analysis indicated that most verbal ability clusters (which included memory) yielded the lowest scores. Generally, juvenile delinquents appeared to have difficulty with retention of knowledge associated with school learning and were especially below nondelinquents on tasks involving verbal memory skills. As stated previously, since it was not determined if the participants in this study would have met criteria for CD, it is uncertain if the same results would apply to CD youth.

An interesting study by Hodges and Plow (1990) examined the intellectual and academic performances of 76 psychiatrically hospitalized children who were between the ages of 6 to 13 years. The WISC-R was used to assess intellectual ability and the Woodcock-Johnson Psychoeducational Battery (Woodcock & Johnson, 1977) estimated academic achievement. Since a comparison group was not used in this study, the Verbal-Performance IQ discrepancy of a standardization sample for the WISC-R (Kaufman, 1976) was utilized. A clinical child psychologist administered the Child Assessment Schedule (Hodges, Kline, Stern, Cytryn, & McKnew, 1982) to obtain the DSM-III diagnoses for CD, OD, depression (i.e., major depressive episode or dysthymia), and anxiety disorders (i.e.,

overanxious or separation anxiety). Participants could meet criteria for more than one diagnostic category since Hodges and Plow did not attempt to differentiate between primary and possible secondary diagnoses. However, by definition, the children could not be diagnosed as OD if they met criteria for CD. Children were not included if they received diagnoses of pervasive developmental disorder, organic brain syndrome, or mental retardation. Children were also excluded if they were assigned a diagnosis of ADD because Hodges and Plow did not have a sufficient number of subjects to analyze the data (Zimet, Zimet, Farley, & Adler, 1994).

Analyses of the data obtained by Hodges and Plow (1990) revealed that 26.1% of CD youth manifested deficits in verbal abilities and demonstrated significantly greater Performance IQ scores (the mean discrepancy was 9.3). In the standardization sample, the higher Performance IQ scores were not observed. It is interesting to note that none of the CD youth evidenced deficits in the Performance domain. Since Hodges and Plow did not exclude subjects with certain comorbid conditions, it is uncertain if these results can be generalized to pure cases of CD youth.

Schachar and Wachsmuth (1990) compared the intellectual abilities and academic attainments of boys with OD or CD and a normal control group (NC). The participants in this study were in the 7-11 year age range and had been referred for disruptive behavior problems. A semistructured interview protocol was administered to parents to obtain background

information as well as symptoms associated with OD, CD, attention deficit disorder with hyperactivity (ADDH), and affective, anxiety and psychosomatic disorders. To assess the extent of behavior problems in the school, as well as symptoms of psychopathology, teachers completed a Rutter B scale (Schachar, Rutter, & Smith, 1981) and the abbreviated Conners' scale (Conners, 1973). Participants were assigned to the OD, CD, or NC groups according to the results of the parent interview. Although CD youth often met criteria for OD, by definition, the diagnosis of CD took precedence. A diagnosis of ADDH was assigned to children who met the DSM-III criteria for that disorder. Boys were diagnosed with an emotional disorder (ED) if they met the criteria for separation anxiety, affective, phobic, or somatization disorders. It was found that comorbid conditions of ADDH and ED were common among CD and OD children and that rates of comorbidity among CD and OD youth were not significantly different. Participants with comorbid conditions of ADDH and ED were included in the study. By definition, none of the NC children met criteria for any psychiatric disorders. Children were excluded from the study if their Full Scale IQ scores were below 80, if they showed evidence of neurological disorders (e.g., epilepsy) or psychoses, or if they were currently on medication.

Data obtained by Schachar and Wachsmuth (1990) indicated that the NC group had significantly higher WISC-R IQ scores than the CD group. Whereas the mean Full Scale IQ score of the CD group was 104, the non-

clinical control group obtained a mean Full Scale IQ score of 120. On the Wide Range Achievement Test (WRAT; Jastak & Wilkinson, 1984), although the scores of the CD group were lower than those obtained by the NC group in all areas (i.e., reading, spelling, and arithmetic), the differences were not statistically significant.

An interesting study by Braggio, Pishkin, Gameros, and Brooks (1993) assessed the influence of adolescent alcohol abuse on academic achievement. The participants were 116 psychiatrically hospitalized adolescent patients who had been selected for this study because they met the DSM-III-R criteria for substance abuse (SA) or had been assigned a DSM-III-R diagnosis of CD. The CD participants did not qualify for a diagnosis of SA. Adolescents were excluded if they had a medical or psychiatric disorder that could adversely affect academic achievement. Also, adolescents with a history of brain damage due to traumatic head injury, or other conditions such as strokes, tumors, convulsions, mental retardation, depression, schizophrenia, or severe malnutrition were excluded from this study. These authors did not control for any other comorbid psychiatric conditions. The normal student control (NSC) group was comprised of students who attended a nearby public school system and did not demonstrate CD behaviors nor had they abused alcohol. Academic achievement was measured with the Peabody Individual Achievement Test (PIAT; Dunn & Markwardt, 1970) and each participant completed two Short Michigan

Alcoholism Screening Tests (Seltzer, Vinokur, & van Rooijen, 1975) and an alcohol and drug questionnaire.

An analysis of the scores obtained on the PIAT revealed that there were no significant differences between SA and CD groups on each of the five subtests and the total test score. However, using a MANCOVA with age as the covariate, both patient groups had significantly lower PIAT subtest scores and total test standard scores than the NSCs ($p < .001$). Since Braggio and colleagues (1993) did not attempt to control for all comorbid conditions, it is uncertain if these results can be generalized to pure cases of CD youth.

Summary

In summary, information pertaining to conduct problems has been reported for years. Due to a lack of uniform nosology, the DSM was developed to provide explicit criteria of various disorders (Kazdin, 1995). The DSM has been revised several times and the criteria for CD have changed. The current definition of CD covers a broad spectrum of behaviors such as staying out late, firesetting, stealing, and sexual assault. There are salient challenges in the classification of CD which determine how we characterize CD youth and which individuals should be included in CD research. The frequency and intensity of the behaviors are important in determining whether or not a child is clinically impaired (Kazdin, 1995). Also, the DSM-IV requires that the behaviors cause "clinically significant impairment in social,

academic, or occupational functioning" (APA, 1994, p. 91). Researchers have tried to identify subtypes of CD to organize the diverse patterns that emerge. Studies have suggested subtypes such as aggressors and stealers, overt and covert patterns of CD, and childhood and adolescent onset of CD.

In epidemiological studies, prevalence rates of CD vary according to the population sampled and methods of assessment. The DSM-IV reports that rates of CD range from 6% to 16% for males and from 2% to 9% for females (APA, 1994). Research also indicates that rates of CD vary according to geographical locations, with higher rates in inner cities. Another important issue is the developmental differences between boys and girls; data indicates that boys have an earlier age of CD onset. Overall, CD was diagnosed more often in boys of all ages and was more prevalent during adolescence for both genders.

Research evidence indicates that CD youth scored significantly lower than controls on standardized measures of intelligence and academic achievement (Schachar & Wachsmuth, 1990). Similarly, Culberton et al. (1989) reported that the WISC-R scores of delinquents were significantly below those of their non-clinical peers on subtests that were related to long-term and short-term memory.

Chapter Two

This chapter presents information relative to the history, nosology, and epidemiology among youth with ODD. Further, studies that examined the intellectual abilities and academic achievements among ODD youth are reviewed.

Historical Background of Oppositional Defiant Disorder

In the 1800s, Emil Kraepelin described negativism as an obstruction of volition or of purposeful actions which leads to the "instinctive suppression of all reaction to external influence, further to stubborn opposition to interference of all sorts, and...performance of actions which are exactly opposed to those which are suggested by the circumstances or required by the environment" (Kraepelin, 1896/1971, p. 47). One of the older works on this subject is James Sully's Studies of Childhood, published in 1914. In the chapter "Extracts from a Father's Diary", Sully culled a boy's activities and sayings as had been chronicled by the boy's father starting in the year 1880:

> Third year. The moral side of the child's nature appears during this year to have undergone noticeable changes. The most striking fact which comes out in the picture of the boy as painted in the present chapter is the sudden emergence of self-will. He began now to show himself a veritable rebel against parental authority. Thus we read (at age 25 months) that when corrected for slapping Jingo, or other fault, he would remain silent and half laugh in a cold

> contemptuous way, which must have been shocking to his worthy parents. A month later we hear of an alarming increase in self-will. He would now strike each of these august persons, and follow up sacrilege with a profane laugh (Sully, 1914, p. 451).

Researchers have been interested in more extreme oppositional behavior as a psychiatric entity since Levy (1955) brought attention to negativism and explored the developmental and functional aspects of oppositional behavior. Levy described a series of cases that were routinely seen at child health clinics or that had been referred for clinical treatment. He determined that various forms of resistance may be seen in newborns; mothers reported instances of negativism only a few days after birth while infants were breast or bottle feeding. Levy regarded a baby's "shyness" as "stubbornness" (Levy, 1955, p. 207). He also observed that an instance of normal oppositional behavior occurs at about 10 to 11 months with the "battle of the spoon" (Levy, 1995, p. 208) which is infants' insistence on feeding themselves. Levy observed that oppositional behavior was very common in two-year-olds. He asserted that these cases provided evidence that a refusal to conform is a "willful contrariness" (Levy, 1955, p. 207) which sometimes continues after childhood. According to Levy, it appears that the child derives some type of satisfaction in asserting his will against others, in opposing societal laws, and in exhibiting his disrespect for conventional rules. He cited an instance of a 12-year-old boy of superior

intelligence who had been referred because, since the first grade, he consistently achieved marks that were barely passing. The boy's mother had first noticed his oppositional behavior when he did not want to go to nursery school. This negativism was subsequently extended into opposition to all schoolwork. The youth told Levy that it took lots of careful planning never to fail a course and, yet, not to get more than a passing grade. On the basis of repeated observations, Levy applied the phrase "oppositional syndrome" to negativistic behavior and asserted that "the term negativistic, or oppositional, or stubborn, or any one of its large number of synonyms is applied most commonly to behavior readily explained as refusal to conform to the ordinary requirements of authority and conventional behavior" (Levy, 1955, p. 205).

Lavietes (1985) reported that opposition at certain periods is necessary for normal development. Oppositional behaviors are related to separation from the parents, developing individuality, and forming inner standards and controls. However, "pathology begins when this developmental phase is prolonged or when the environment overreacts to the person's opposition" (Lavietes, 1985, p. 1744).

Nosology of Oppositional Defiant Disorder

In 1966, the GAP elaborated upon Levy's theory (GAP, 1974). The previously used term passive-aggressive personality disorder was replaced with oppositional personality disorder to describe youth who expressed their

aggression through oppositional patterns of behavior. According to the GAP, these children "may appear to be conforming, but they continually provoke adults or other children. By the use of negativism, stubbornness, dawdling, procrastination, and other measures, they covertly show their underlying aggressivity" (1974, p. 70). In the 1974 edition, the GAP further stated that learning difficulties may occur due to characteristic oppositional patterns of "blocking out" or "failing to hear" (p. 70).

The APA's Committee on Nomenclature and Statistics relied on clinical experience and existing literature to introduce the first official classification of OD in the DSM-III (APA, 1980). In the 1980 nosology, OD was listed under the heading "other disorders of infancy, childhood, or adolescence" (p. 57) to describe children who showed a "pattern of disobedient, negativistic, and provocative opposition to authority figures...At times they may appear to be conforming, but in their conformity they still remain provocative toward those around them" (p. 63). OD children manifested at least two of the following symptoms: (1) violations of minor rules, (2) temper tantrums, (3) argumentativeness, (4) provocative behavior, and (5) stubbornness. Despite the fact that the DSM-III was widely accepted and recognized, modifications were suggested.

Seven years later, the DSM-III-R was published (APA, 1987) and OD was changed to ODD. The term defiant was included to reflect a characteristic pattern of responding. In the revision, OD underwent a

conceptual transformation. The original theory of the disorder in the DSM-III was characterized primarily by opposition to the requests of authority figures. However, in the DSM-III-R, it was transformed into a pattern of angry, aggressive, and negativistic behaviors. ODD was grouped together with CD and ADHD in the subclass "disruptive behavior disorders." The number of diagnostic criteria was increased to nine so that a wider range of symptoms could be included. The additional symptoms were: (1) blames others for his or her own mistakes, (2) is touchy or easily annoyed, (3) is angry and resentful, (4) is spiteful or vindictive, and (5) swears. The remaining criteria were reworded (i.e, "temper tantrums" became "often loses temper"; APA, 1987, p. 57). The diagnostic thresholds for ODD were raised by eliminating the milder symptoms (i.e., violations of minor rules) and increasing the number of symptoms required for each diagnosis (from two in the DSM-III to five in the DSM-III-R). These modifications were suggested to offset the criticism that ODD could not be distinguished from the normal behaviors of children (Rutter & Shaffer, 1980).

When revising the DSM-III-R, Lahey et al. (1994) conducted field trials for ODD in children and adolescents for the purpose of selecting valid diagnostic thresholds and to compare the psychometric properties with previous DSM diagnostic criteria. A heterogeneous sample of clinic-referred children and adolescents (332 boys and 105 girls) who ranged in age from 4 to 17 years were included in the study. Participants were excluded if

comorbid conditions were present. The results of a modified version of the DISC (Shaffer, Fisher, Piacentini, Schwab-Stone, & Wicks, 1992) were analyzed to formulate diagnoses according to the DSM-III-R criteria. Data were obtained on several measures of impairment including the CGAS which was completed by both the parent and the interviewer to obtain global ratings of impairment. The results of the field trials led to the 1994 revision. No symptoms of ODD were added and the symptom of "often swears or uses obscene language" (APA, 1987, p. 57) was deleted because it was found to be only marginally associated with the disorder. An analysis of the data supported the use of a threshold of four symptoms of ODD to maximize accurate identification of impaired children. Taken together, the DSM-IV definition of ODD was deemed to be somewhat better than the DSM-III-R definition of ODD in terms of internal consistency, test-retest agreement, and validity. Examined in this context, Table 5 provides the criteria for formulating an Axis I DSM-IV diagnosis of ODD.

Table 5

DSM-IV Diagnostic Criteria for Oppositional Defiant Disorder

A. A pattern of negativistic, hostile, and defiant behavior lasting at least 6 months, during which four (or more) of the following are present:

(1) often loses temper

(2) often argues with adults

(3) often actively defies or refuses to comply with adults' requests or rules

(4) often deliberately annoys people

(5) often blames others for his or her mistakes or misbehavior

(6) is often touchy or easily annoyed by others

(7) is often angry and resentful

(8) is often spiteful or vindictive

Note: Consider a criterion met only if the behavior occurs more frequently than is typically observed in individuals of comparable age and development level.

(table continues)

B. The disturbance causes clinically significant impairment in social, academic, or occupational functioning.

C. The behaviors do not occur exclusively during the course of a Psychotic or Mood Disorder.

D. Criteria are not met for Conduct Disorder, and, if the individual is age 18 years or older, criteria are not met for Antisocial Personality Disorder.

Note: Criteria from the American Psychiatric Association: Diagnostic and statistical manual of mental disorders, Fourth Edition. Washington, DC, American Psychiatric Association, 1994. Reprinted by permission (see Appendix A).

In the ICD-10 (WHO, 1993), a conceptualization of ODD that is similar to the DSM-III-R criteria was acknowledged. In the tenth revision, ODD is listed as a dimension of CD. ODD children are described as displaying markedly defiant, disobedient, annoying behavior without generally engaging in severe dissocial or aggressive acts that violate the law or the rights of others. In the ICD-10, a diagnosis of ODD requires that the general criteria for CD must be met. Four or more of the symptoms listed for CD are required for a diagnosis of ODD, but no more than two of the more severe symptoms can be present. The ICD-10 stipulates that the symptoms must cause impairment and be inconsistent with the child's level of development. A minimum of four of the symptoms are required for at least six months. In this context, Table 6 presents the ICD-10 diagnostic guidelines for a diagnosis of ODD.

Table 6

ICD - 10 Diagnostic Criteria for Oppositional Defiant Disorder

F91.3 Oppositional Defiant Disorder

A. The general criteria for conduct disorder (F91) must be met.

B. Four or more of the symptoms listed for F91 criterion must be present, but with no more than two symptoms from items (9) - (23)..

C. The symptoms in criterion B must be maladaptive and inconsistent with the developmental level.

D. At least four of the symptoms must have been present for at least 6 months.

Note: Criteria from the World Health Organization (1992). The ICD-10 classification of mental and behavioural disorders. Geneva. Reprinted by permission (see Appendix B).

Prevalence of Oppositional Defiant Disorder

Varying degrees of oppositional and negativistic behavior are part of the normal development of children and are, therefore, a common and prevalent phenomenon (Levy, 1955; Rey et al., 1988). Oppositional behavior generally begins before the age of eight and usually does not start later than adolescence (Johnson, 1989). Generally, when behaviors are less severe, they decrease over time, do not interfere with the child's functioning and development, and do not predict psychiatric problems, criminal behaviors, nor social maladjustment in adulthood (Johnson, 1989). To determine if the behavior is regarded as a symptom of pathology, intensity (how frequently it occurs and with what degree of magnitude) and its duration must be considered. The DSM-IV reports that the prevalence of ODD varies between 2% to 16%. This disparity is due to the diverse populations that are sampled and the methods used for obtaining data.

It is important to understand the extent to which revisions in diagnostic criteria change prevalence rates. In a comparison of the DSM-III and the DSM-III-R diagnoses, Lahey et al. (1990) found that the increase in the number of symptoms required for a diagnosis of ODD (from two symptoms in DSM-III to five symptoms in DSM-III-R) resulted in a 25.5% decrease in the prevalence rates of ODD. Thereafter, in the DSM-IV, the number of symptoms required for a diagnosis was reduced to four

symptoms. Since the advent of the DSM-IV, studies have shown a 23% increase in the prevalence of ODD (Lewis, 1996).

Epidemiological studies of the trait of negativism indicated a high prevalence in the overall school-age population (Greene et al.,1973). To study how children's behavior varies with their respective ages, Greene and colleagues interviewed the mothers of 1,034 children between the ages of 6 and 18 in New York City. On a structured questionnaire, the children were rated on 5-point scales of impairment from "mild" to "severe". The percentage of children exhibiting negativism (e.g., says "No" often) and who were rated as "markedly to severely" impaired tended to remain at relatively high and stable rates (26% at ages 6 to 9, 30% at ages 10 to 13, 32% at ages 14 to 18).

Rey (1993) reviewed the literature on ODD to confirm its place in the psychiatric nomenclature. When he surveyed studies that examined the prevalence rates and gender ratios among subjects in community samples, results showed that the pattern of ODD varies. As presented in Table 7, prevalence rates of ODD fluctuated between 1.7% (McGee et al., 1990) and 15.5 % (Cohen et al.,1993). Data indicated that approximately one-third of all children who were diagnosed with any disorder were also diagnosed with ODD. Overall, ODD was one of the most commonly diagnosed psychiatric conditions.

Table 7

Rates and Gender Ratios of ODD

Authors	Diagnostic measure	Ages (years)	No. of youth	% ODD youth	Ratio boys/girls
Cohen et al.	DISC	9-12	775	5.0	2.3:1
(1987)	DISC-P	13-18		7.5	1:1.1
Anderson et al.	DISC-C	11	792	5.7	2.2:1
(1987)	Rutter "A"				
Kashani et al.	DICA	14-16	150	6.0	1:2
(1987)	DICA-P				
Bird et al.	DISC (Span)	4-16	386	9.9	More freq. boys
(1988)					
Mc Gee et al.	DISC-C	15	943	1.7	1:3
(1990)					
Cohen et al.	DISC-1	10-13	541	12.3	1.4:1
(1993)		14-16	508	15.5	1:1
		17-20	446	12.4	1:1

In the longitudinal study of Cohen and associates (1987), data indicated that in the younger group (9 to 12 years), 5.0% of youth met criteria for OD and that the ratio of boys to girls was 2.3:1 (Table 7). However, when assessing adolescents from 13 to 18 years of age, the rate increased and 7.5% of the youth met criteria for OD. Prevalence rates for 13- to 18-year old girls were slightly higher than those obtained for boys of similar ages (ratio of boys to girls was 1:1.1). Cohen et al. also found that prevalence estimates for OD were unusually high when information was obtained by both child and parent interviews. For youth from 9 to 12 years of age, OD rates for females were 15% when reported by the child and 25% when reported by a parent. For males, rates were 17% when reported by the child and 34% when reported by the parent. For the 13- to 18-year old females, rates were 30% when reported by the child and 27% when reported by the parent. For males, rates were 23% when the child was the informant, and 19% when the parent was the informant. The age and gender ratios conformed to the expected patterns, with an increase in the incidence of OD in the older teen group. These authors also asserted that OD rates were much more credible when both parent and child responses were combined.

Anderson et al. (1987) studied the prevalence rates of the DSM-III disorders in 11-year-olds (presented in Table 7) and found that 5.7% of the participants met the criteria for OD. Boys were diagnosed as OD more than

twice as often as girls (ratio of males to females was 2.2:1). OD was one of the disorders (along with CD and ADD) with the highest proportion of cases occurring as a single disorder. Likewise, Kashani et al. (1987) reported that in a community sample of 11-year-olds, 4.0% of the boys and 8.0% of the girls met the criteria for OD; overall rate was 6% (see Table 7). However, in this study, OD was diagnosed twice as often in girls.

An epidemiological study conducted by Bird et al. (1988) included a measure of severity for estimating the prevalence of maladjustment. Youth who met the DSM-III criteria for OD and had a CGAS score of less than 61 were considered to be definitely maladjusted. Accordingly, OD was found to be one of the more common diagnostic categories and its prevalence was affected by the addition of the severity criterion. As reported in Table 7, 9.9% of the participants were included in the more robust definition of OD. To provide data about SES, age was collapsed into three major age groups (4 and 5 years, 6 to 11 years, and 12 to 16 years), and SES was defined according to Hollingshead's classes. Results suggested that ODD was significantly more prevalent in children of lower socioeconomic status.

An often-cited study by Bird et al. (1990) provided additional empirical data on the use of the CGAS. Data indicated that almost 20% of the children from the community sample could be diagnosed as OD when impairment was not taken into consideration, but only 9.9% met the criteria for OD when impairment was included. Psychiatrists found that many

children who met the diagnostic criteria for OD did not require clinical attention. Bird and colleagues concluded that a measure of severity should be incorporated in the categorization of childhood psychopathology so that the rates obtained are more plausible. An analysis of the demographic characteristics of the subjects in the sample revealed that there was a significant correlation between SES and impairment; the proportion of low SES youth increased with severity.

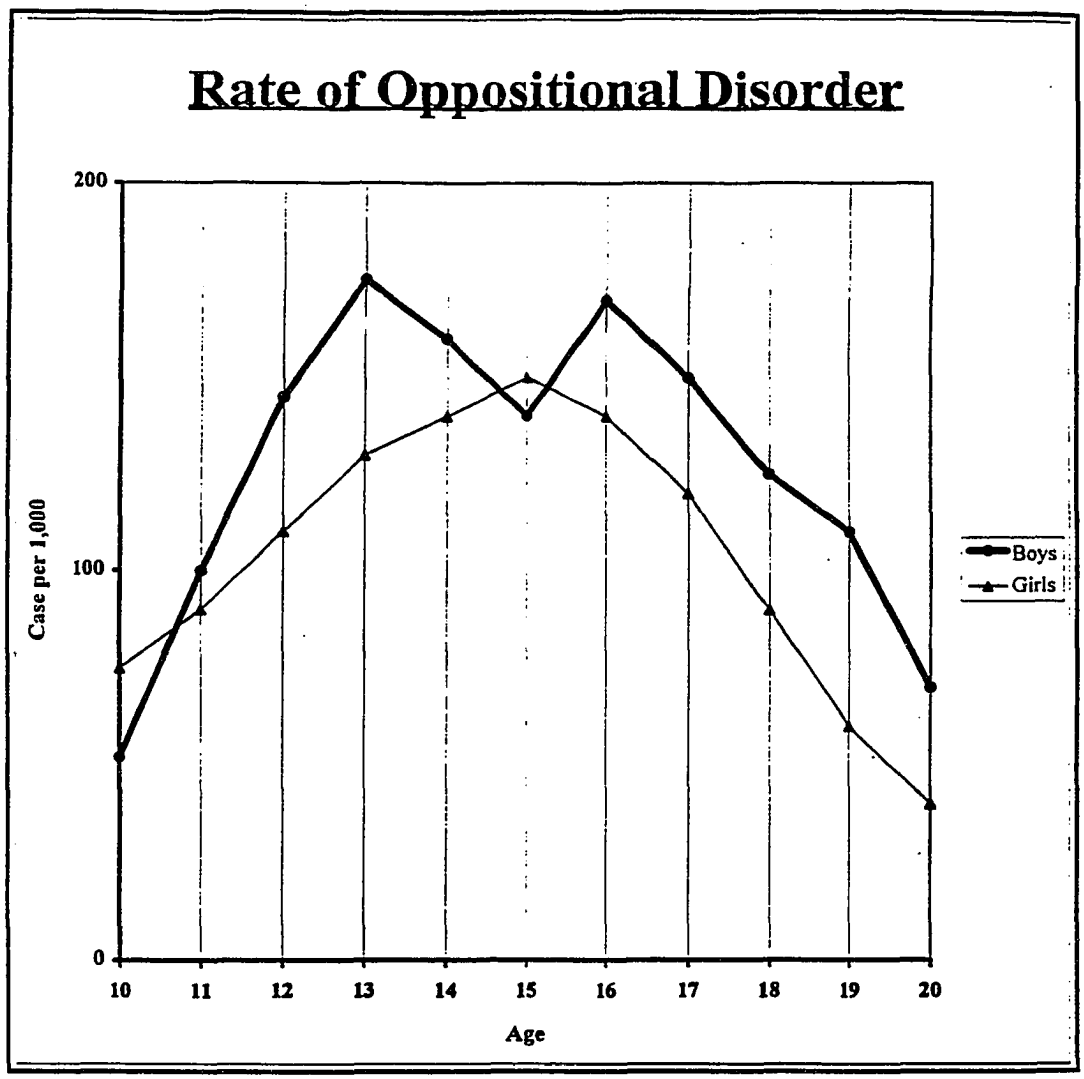
McGee et al. (1990) used self- and parent-reports for identifying disorders in 15-year-old adolescents who had been assessed by Anderson et al. (1987) at 11 years of age. Results obtained by McGee and colleagues contrasted with those previously reported by Anderson and colleagues when the same individuals were younger. A significant reduction in the prevalence of OD was noted; the rate of OD had decreased to 1.7%. OD was more than three times more prevalent in girls than in boys (see Table 7). McGee et al. asserted that the significantly lower rate obtained in this study might be related to methodological differences since other studies did not use comparable methods for identifying disorders. In this study, fewer opportunities were provided for reporting additional criterion symptoms.

One of the first studies to report the prevalence rates of symptoms of the DSM-III-R disruptive disorders was conducted by Pelham, Gnagy, Greenslade, and Milich (1992). A new rating scale, Disruptive Behavior Disorders (DBD) Rating Scale, was administered to 931 boys in regular

classrooms in grades K through 8. Teacher ratings were obtained from a wide representation of city populations in the United States and Canada. These authors noted a gradual increase in ODD symptoms as children aged. The percentage of students who met the DSM-III-R diagnostic criteria for ODD was quite high. The mean average ODD scores were: .46 (5-6 years), .50 (7-8 years), .71 (9-10 years), and .78 (11-14 years).

Age trends in the prevalence of ODD in a general population sample of 10-20 year olds were reported by Cohen et al. (1993). Information obtained in this study (see Table 7) showed the lowest levels of ODD among the 10- and 13-year-olds (14.2% for boys and 10.4% for girls, overall rate was 12.3%). Rates rose among 13- to 16-year old youth to 15.4% for boys and 15.6% for girls (overall rate was 15.5%). Rates decreased during the 17 to 20 year age span (12.2% for boys, 12.5% for girls, overall rate was 12.4%). For both gender groups, marked peaks in the prevalence of ODD were shown. Unlike CD, the prevalence and age patterns for boys and girls were virtually the same (see Figure 2). The lowest rates of ODD were among 10- and 11-year-old youth. The highest levels were among the 13- to 16-year-olds and fell off sharply thereafter.

Figure 2



Cohen, P., Cohen, J., Kasen, S., Velez C., Hartmark, C., Jaohnson, J., Rojas, M., Brook, J., & Streuning, E. (1993). An epidemiological study of disorders in late childhood and adolescence - I. Age and gender specific prevalence. Journal of Child Psychology and Psychiatry, 34(6), 851-867.

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Academic Deficiencies and Cognitive Impairments Among ODD Youth

One of the few studies to address academic deficits and cognitive impairments of OD youth was undertaken by Schachar and Wachsmuth (1990). Boys from 7 to 11 years of age who met the DSM-III criteria for CD or OD were included in the study. After the DSM-III-R was published, the authors established that OD subjects also met the criteria for ODD. As previously reported in Chapter One of this research paper, boys were excluded from this study if they showed evidence of certain physical or mental conditions. However, participants with comorbid conditions of ADDH and ED were included in the study. On the WISC-R, it was found that the NC group scored significantly higher than the OD and CD groups. It is interesting to note that the scores of the OD group were lower than those of the CD group. No information was given regarding the scores obtained on specific subtests. On the WRAT, differences among the groups in reading were not significant; nevertheless, planned comparisons showed that the scores of the OD group were significantly lower than those of the NC group.

When Hodges and Plow (1990) studied the IQ and academic achievement of psychiatrically hospitalized children, the WISC-R was used to assess intellectual ability. As previously reported in Chapter One, diagnoses for CD, OD and other disorders were generated and subjects were included if they qualified for more than one diagnosis. Children with other conditions (i.e., pervasive developmental disorder, organic brain syndrome, or mental

retardation) were excluded from this study. Results obtained by Hodges and Plow (1990) indicated that the difference between the Verbal IQ scores and Performance IQ scores of OD subjects did not differ significantly from those of the CD and NC groups. Likewise, the achievement scores, as measured by the Woodcock Johnson, were not significantly different. The authors stated that they did not know if these findings would generalize to the DSM-III-R definition of ODD.

Summary

ODD is a recent, but common, clinical diagnosis. It was first introduced in the DSM-III and, since that time, has undergone substantial changes. A certain degree of oppositional and negativistic behavior is part of normal development and is relatively common in children. A survey of community samples of children estimated that the prevalence of OD ranged between 1.7% and 15.5%; approximately one-third of all children with any psychiatric disorder met the DSM-III criteria for OD. Generally, the pattern of OD was seen more frequently in boys than in girls, but this seemed to depend on the age of the child. When subjects were 12 years of age or younger, the rate of OD was about twice as prevalent in boys (Cohen et al., 1987; Anderson et al.,1987). However, some studies of adolescents showed that the rates of OD were higher for girls (Kashani et al., 1987; McGee et al., 1990). Contradictory results from epidemiological studies have made it difficult to determine whether overall rates of ODD increase or

decrease with age (Rey, 1993). When data about SES was provided, results indicated that ODD was more prevalent in lower SES groups. Little research has been completed regarding the academic deficits and cognitive impairments of ODD youth. However, a study by Schachar and Wachsmuth (1990) found that OD youth scored significantly lower than a non-clinical control group on standardized measures of intelligence and academic achievement. Studies regarding the cognitive impairments of ODD youth are sorely needed.

Chapter Three

This chapter presents information regarding the differential validity of CD and ODD. Studies that examined the extent to which CD can be further classified into overt and covert behaviors are also reviewed.

Differential Validity of CD and ODD

The introduction of OD in the DSM-III proved to be one of the most controversial and widely questioned classifications of childhood disorders (Rey, 1993). OD was criticized for two reasons. First, the diagnostic utility of the classification was questioned since researchers claimed that the children who met the diagnostic criteria for OD did not exhibit impairments severe enough to differentiate them from normal children. Rutter and Shaffer (1980) argued that the DSM-III description of OD "sounds like the behavior of a lot of children one meets socially and not at all like psychiatric disorder.... on their own they do not sound sufficient for a psychiatric diagnosis" (p. 384). Likewise, Fergusson, Horwood, & Lynskey (1994) maintained that OD may be overdiagnosed as a psychiatric entity.

Contrasting evidence was gathered by other investigators. Schachar and Wachsmuth's (1990) study lends support to the conclusion that OD boys (7 to 11 years old) can be distinguished from a matched group of male community volunteers. These authors concluded that many of the dependent measures differentiated the OD and NC groups. Specifically, on

The Family Assessment Measure (FAM; Skinner, Steinhauer, & Santa-Barbara, 1983), a self-report instrument designed to identify the strengths and weaknesses of families and the dynamics of family relationships, individuals who met the criteria for OD scored higher on various factors (e.g., comorbid psychopathology, learning disability, family relationship problems, and paternal psychiatric disorders) than their non-clinical peers. In addition, OD participants scored lower on standardized intelligence and academic tests than the NC group. Schachar and Wachsmuth further reported that boys in the OD group experienced chronic peer problems more frequently than those in the NC group. Analogously, OD youth had significantly more serious difficulties with their siblings than the NC group.

The second criticism involved the view that OD is just a milder form of CD (Werry, Reeves, & Elkind, 1987). Given the overlapping symptoms, it was argued that OD should not be considered a distinct entity. However, according to Kazdin (1989), CD and ODD can be viewed on a continuum. First, the symptoms of ODD are milder than the CD symptoms; more severe behaviors are included in the CD category. Second, there is some evidence that oppositional and defiant behaviors initially occur in children who subsequently develop CD (Loeber & Schmaling, 1985). Therefore, oppositional and defiant behaviors sometimes precede severe conduct problems.

The inclusion of OD in the DSM-III implied that OD is a distinct mental disorder and that OD children share certain unique characteristics, etiology, and other relevant features that are not found in an identical way with normal children or children with other psychiatric conditions (Schachar & Wachsmuth, 1990). Rey (1993) concluded that the results of factor analytical studies appear to support the face validity of the diagnosis of ODD. Nevertheless, only a limited number of studies have compared diagnostic groups with each other and most have compared ADDH and CD (Reeves, Werry, Elkind, & Zametkin, 1987). Recently, however, the diagnostic category of OD has been examined in several studies.

In a review of research on differentiating characteristics of CD, ODD, ADD, and anxiety (ANX) disorders in children, Werry, Reeves, and Elkind (1987) pointed to the paucity of research regarding the validity of these diagnostic categories. Werry and colleagues found little evidence (independent of the actual symptoms) to confirm the validity of ADD, CD, ANX, and OD. Nevertheless, there were some suggestions that provided a basis for the distinctiveness of these disorders. ADD appears to be a cognitive disorder of neurodevelopmental origin and presents more symptoms of impulsivity and poorer school achievement. It is often associated with increased motor activity. In contrast, CD may be a disorder of social relationships of psychosocial origin; two of the few distinguishing characteristics of CD youth were egocentricity and a tendency to make more

hostile inferences. The reliability of OD depended upon the instrument used to gather data.

In an attempt to clarify whether symptoms of OD and CD belong to the same or different categories, Rey et al. (1988) compared adolescents with single diagnoses of OD or CD. Ratings were obtained on the Psychosocial Adversity Index (Shaffer, Chadwick, & Rutter, 1975) and the internalizing scale of the CBCL. An analysis of the results revealed that OD and CD groups could not be distinguished on factors such as gender, social class, and ratings of stress. However, OD participants were more socially competent and less disturbed overall than CD participants. Rey and colleagues concluded that "differences found between OD and CD in this study, although significant, are not great and are mainly in a direction that shows that adolescents with OD function better and have fewer problems than their counterparts with CD" (1988, p. 161). Similarly, Schachar and Wachsmuth (1990) argued that since "OD and CD did not have differential validity in these results or in those of previous studies suggests that a distinction between the two conditions might not be necessary" (p. 1101).

Nevertheless, substantial factor analytic literature supports the validity of the distinction between ODD and CD as presented in the DSM-III-R (Frick, Lahey, Loeber, et al., 1991). These noted investigators analyzed parent and teacher responses to the DISC in a sample of 177 boys (7 to 12 years old) in an outpatient clinic. A factor analysis of the results obtained by Frick and

colleagues revealed that "distinct patterns of behavioral covariation can be found that support (with some minor variations) the DSM-III-R distinction between ODD and CD" (1991, p. 207). Likewise, the internal consistency and diagnostic validity of DSM-III-R diagnoses of ODD and CD were investigated by Loeber et al. (1993). The subjects were boys from 7 to 12 years of age who had been referred to university outpatient clinics. One group had been referred for disruptive behaviors, and the comparison group had been referred for internalizing disorders and did not meet the criteria for ODD or CD. Over a 3-year period, at yearly intervals, the DISC (revised form; Costello, Edelbrock, Dulcan, Kalas, & Klaric, 1984) was administered to parents, teachers, and children. An extended version of the CBCL was completed by both parents and teachers and standardized intelligence and achievement tests were administered to children. Data from the three sources (mothers, teachers, and subjects) were gathered to obtain information regarding symptoms of CD. However, for ODD symptoms, only information from teachers and parents was included since it has been found that children are not reliable informants of their own oppositional behavior (Loeber, Green, Lahey, & Stouthamer-Loeber, 1989).

Loeber et al. (1993) found that the majority of the boys met the criteria for almost all of the oppositional behaviors listed in the DSM-III-R. Although most of the symptoms significantly differentiated the CD and ODD groups, some exceptions were noted. Whereas Loeber and colleagues

reported that 93.8% of the ODD subjects and 95.6% of the CD subjects often lost their temper, it is interesting to note that this symptom was reported for only 62.2% of the boys in the comparison group. Also, certain DSM-III-R criteria for CD (e.g., starts fights, steals, vandalizes, uses weapons, and is cruel to others) significantly differentiated ODD, CD, and comparison groups; 86.8% of the CD boys and 32.4% of the ODD boys reported that they started fights, while only 15.8% of the participants in the comparison group reported this symptom.

Although Lahey and colleagues (1994) concurred with Rutter and Shaffer (1980) that ODD might be considered a less mature and less severe type of CD, they listed three reasons to support the distinctiveness of ODD and CD. First, although the majority of youth who meet criteria for CD have a history of ODD, not all youth with ODD subsequently develop CD (Loeber, Lahey, & Thomas, 1991). Analogously, Wenning, Nathan, and King (1993) reported that "some oppositional and defiant children simply remain oppositional and defiant and do not progress to CD as defined in DSM-III-R. Thus, there may still be room to consider ODD a separate childhood personality disorder" (p. 296). In a similar vein, Lahey, Loeber, Quay, Frick, and Grimm (1992) cited evidence from a Developmental Trends Study (Lahey et al., 1990) of 177 clinic-referred boys (age range 7 to 12 years) who were reassessed annually for 4 years. It was discovered that about

75% of the boys who were originally diagnosed with only ODD did not progress to CD.

Second, Lahey et al. (1994) also argued that the developmental course of symptoms and age of onset for ODD and CD differ. Support for this argument has been given by Rey (1993) who maintained that ODD symptoms generally appear during the preschool period, but few CD symptoms occur during this time. At eight years of age, ODD symptoms peak and sometimes increase again during adolescence. The onset of mild CD symptoms emerges slightly later and serious CD symptoms continue to increase with age.

The third reason proposed by Lahey et al. (1994) is that the symptoms of CD and ODD are comprised of fairly distinct clusters of intercorrelated behaviors. When reviewing the evidence for a diagnostic distinction of ODD and CD, Loeber, Lahey, and Thomas (1991) provided support for differentiating between ODD and CD. The results of factor-analytic studies of behavioral questionnaires identified two factors which corresponded to the ODD and CD diagnostic classifications. Loeber and colleagues concluded, "The symptoms of disruptive child behavior consistently aggregated into two groupings, one composed of all ODD symptoms and some symptoms of physical aggression (especially fighting and bullying) and another factor composed only of covert (nonaggressive) CD symptoms" (Loeber et al., 1991, p. 380). Loeber and colleagues (1991)

further stated, "In general, the various vantage points reviewed suggest that ODD and CD are different disorders but also are developmentally related" (p. 387). Similarly, Achenbach, Conners, Quay, Verhulst, & Howell (1989) found that factor-analytic studies lend weight to the distinction of CD and ODD, as long as the ODD criteria do not include the most serious forms of physical aggression.

Fergusson, Horwood, and Lynskey (1994) used factor analysis methods to examine the extent to which criteria for disruptive behavior disorders supported the classification system proposed for DSM-III-R. They paid specific attention to (1) whether or not ODD is factorally distinct from CD, and (2) the extent to which CD can be further classified as overt and covert subtypes of CD. Fergusson and colleagues gathered information on the DSM-III-R criteria for disruptive behavior patterns from a sample of 739 15-year-old youth who were involved in a major longitudinal study in New Zealand. The measures used in this study included parental reports of children's behaviors which were based on the RBPC. For the diagnoses of ODD, self-report behaviors were based on items taken from the DISC. Police contact data were provided by the New Zealand Police.

Fergusson et al. stated that "ODD and CD cannot be described as expressions of a single common factor of CD" (1994, p. 1152). When measures of ADHD were included in the analysis, these researchers pointed to different developmental consequences for ODD and ADHD and found that

ADHD is highly correlated with, but factorally distinct from other aspects of disruptive behavior patterns. These authors contended that "to the extent that disruptive behavior syndromes in isolation appear to be associated with quite different developmental consequences, it is clearly important that distinctions between different types of disruptive behavior are drawn" (Fergusson et al., 1994, p. 1153).

In a discussion of the structure of DSM-III-R criteria for disruptive behavior disorders, Bird (1994) maintained that Fergusson et al.'s (1994) findings provide strong statistical and empirical evidence that disruptive behavior disorders are highly related; they fall into four distinct areas of psychopathology that correspond to ADHD, ODD, and overt and covert CD. Bird maintained that the findings of Fergusson and colleagues add to the wealth of empirical evidence which supports similar conclusions.

Overt and Covert Behaviors

Based on the results of Loeber and Schmaling's (1985) meta-analytic study, a single bipolar scale was extracted; ODD symptoms and aggressive CD symptoms were considered overt and were placed at one end, while covert CD symptoms were grouped at the other end. In an impressive meta-analytic review, Frick et al., (1993) summarized 60 factor analyses from 44 published studies which involved 28,401 children and adolescents. Results were based on parent and teacher ratings of child conduct problems. Data revealed that the dimensions of CD are complex and may require a second

bipolar scale. Frick et al. proposed a four-quadrant solution: The behaviors in Quadrants A and B (which were above the horizontal line) were labeled the "destructive" pole since the behaviors are harmful and destructive to property or persons. Below the horizontal axis, the behaviors are less destructive (except to oneself in some instances) and the negative pole was called "nondestructive"; Quadrant C was comprised of covert symptoms of CD that are "status violations." Almost all of the ODD symptoms fall in the overt-nondestructive Quadrant D while symptoms of CD fall in the three other quadrants (i.e., property violations, aggression, status violations).

Summary

Most child psychiatric classifications have been shown to be independent conditions (Rey, 1993). Research evidence has suggested that ODD and CD are distinct diagnostic categories and that there are explicit differences between the disorders. CD has been recognized for years as a type of dysfunction that includes various antisocial behaviors. The behaviors are often against the environment and seem to infringe more on others than on the child or adolescent suffering from the condition (Lewis, 1995). The common characteristic of these behaviors is that they tend to violate major social rules.

On the other hand, ODD is a classification that has been defined relatively recently (APA, 1980). It is a severely handicapping condition that is found in a high percentage of children in both clinic and community

settings. Arguments in favor of considering ODD as a separate classification are supported from clinical evidence that ODD behaviors are generally less severe than those associated with CD. Oppositional children tend to be argumentative, refuse to comply with adults' rules or requests, and may be spiteful and vindictive. Generally, these behaviors are not infractions against major social rules or expectations (Loeber et al., 1993).

Several researchers have expressed the view that ODD and CD can be viewed on a continuum since the behaviors of ODD youth tend to be less mature and less severe than those identified with CD (Kazdin, 1989; Rutter & Shaffer, 1980). Factor analytic studies provide support for the theory that CD may be comprised of a single disorder with two subtypes. As stated by Fergusson et al. (1994), "When taken together these results strongly suggest that the measures subsumed under the heading 'disruptive behavior disorders' in DSM-III-R represent a quartet of highly correlated scale dimensions representing oppositional behaviors, overt CD, covert CD, and ADHD behaviors" (p. 1152). Updated empirical findings based on the DSM-IV criteria are needed.

Chapter Four

Methodology

In this chapter, the statement of the problem, the purpose of the study, and the predicted hypotheses will be introduced. Furthermore, the research design, participant selection procedures, diagnostic measures, and dependent variable will be specified. Demographic information will also be provided.

Statement of Research Problem

The clinical literature suggests that specific patterns of cognitive impairments may be evident among CD or ODD youth (Braggio et al., 1993; Schachar & Wachsmuth, 1990). OD and CD groups scored significantly lower than their non-clinical cohorts on standardized tests that estimate academic and intellectual abilities (Schachar & Wachsmuth, 1990). These researchers also found that OD and CD subjects obtained comparable scores on cognitive tests.

Epidemiological studies that examined the prevalence rates of CD and OD youth observed that the highest rates for both disorders occurred during adolescence (Cohen et al., 1993; Rey, 1993). In addition, studies that provided information regarding the academic and memory impairments of CD youth predominantly involved adolescents in their investigations (Ollendick, 1979; Braggio et al., 1993). However, there is a paucity of comparative

information involving the memory and learning abilities among adolescents with CD or ODD.

Purpose of the Study

In view of the above, the purpose of this investigation was to more fully explore the cognitive functioning of CD and ODD adolescents. As such, this study compared and contrasted the performance of adolescents with CD, ODD, and non-clinical cohorts on the WRAML (Sheslow & Adams, 1990). This is one of the first research projects to examine the multi-faceted memory functioning of CD and ODD youth during adolescence.

Rationale and Hypotheses

The DSM-IV states that in order to meet criteria for CD or ODD, the disturbance must cause "clinically significant impairment in social, academic, or occupational functioning" (APA, 1994, pp. 91, 94). Research has shown that CD children are more frequently retained in grades and leave school sooner than peers matched for age, SES, and other demographic variables (Glueck & Glueck, 1968). In a similar vein, Frick and colleagues (1991) observed that CD youth experienced learning difficulties and academic underachievement. In this study, academic underachievement was defined as a significant discrepancy between a child's expected level of achievement as measured by scores obtained on the WISC-R (Wechsler, 1974) and actual level of achievement as measured by age standard scores

on the Basic Achievement Skills Individual Screener (Psychological Corp., 1983). Analogously, Schachar and Wachsmuth (1990) reported that CD and OD youth scored significantly lower than their non-clinical counterparts on standardized measures of intelligence and academic achievement. However, literature regarding the memory and learning abilities of CD or ODD youth is limited. No other studies have been specifically designed to assess the memory functioning of CD and ODD youth.

A study conducted by Ollendick (1979) noted that CD youth achieved the lowest mean scaled scores on subtests of the WISC-R that tapped verbal memory abilities (i.e., Information, Vocabulary). Similarly, Culberton, Feral, and Gabby (1989) found that CD youth did poorly on subtests that assessed verbal memory functioning. Culberton et al. (1989) concluded that CD youth appeared to have difficulty with retention of knowledge, especially on tasks involving verbal memory skills. Furthermore, Even, Kipper, and Yehuda (1988) reported that CD youth performed significantly lower than their non-clinical peers when asked to recall and reproduce visual designs. Similarly, studies by Ollendick (1979) and Culberton and colleagues (1989) revealed that CD youth performed below average on short-term visual memory tasks. As such, it appears that CD youth experience verbal and visual memory impairments. In view of these findings, the following hypotheses were tested.

HO1: The General Memory Index scores of the CD group will be significantly lower than the General Memory Index scores of the control group.

HO2: The Verbal Memory Index scores of the CD group will be significantly lower than the Verbal Memory Index scores of the control group.

HO3: The Visual Memory Index scores of the CD group will be significantly lower than the Visual Memory Index scores of the control group.

HO4: The Learning Index scores of the CD group will be significantly lower than the Learning Index scores of the control group.

Research conducted by Schachar and Wachsmuth (1990) determined that OD youth scored significantly below normal control subjects on standardized measures of intellectual functioning and academic achievement. In effect, it appears that ODD youth may evidence an inability to recall and learn verbal and visual material. As such, the following hypotheses were examined.

HO5: The General Memory Index scores of the ODD group will be significantly lower than the General Memory Index scores of the control group.

HO6: The Verbal Memory Index scores of the ODD group will be

significantly lower than the Verbal Memory Index scores of the control group.

HO7: The Visual Memory Index scores of the ODD group will be significantly lower than the Visual Memory Index scores of the control group.

HO8: The Learning Index scores of the ODD group will be significantly lower than the Learning Index scores of the control group.

It is interesting to note that OD and CD youth attained comparable scores on standardized tests of intellectual functioning (Schachar & Wachsmuth, 1990). These authors also found that the scores of OD and CD groups were not significantly different on standardized measures of reading, spelling, and arithmetic. It is reasonable to assume that both ODD and CD students would demonstrate similar performance on the WRAML. As such, the following hypotheses were predicted.

HO9: The General Memory Index scores of the CD and ODD groups will not be significantly different.

HO10: The Verbal Memory Index scores of the CD and ODD groups will not be significantly different.

HO11: The Visual Memory Index scores of the CD and ODD groups will not be significantly different.

HO12: The Learning Index scores of the CD and ODD groups will not be significantly different.

Inasmuch as the Verbal, Visual, and Learning Index scores were obtained by summing three subtest scores for each area, the following hypotheses were also evaluated.

HO13: The Story Memory subtest scores of the CD groups will be significantly lower than the Story Memory subtest scores of the control group.

HO14: The Sentence Memory subtest scores of the CD group will be significantly lower than the Sentence Memory subtest scores of the control group.

HO15: The Number/Letter Memory subtest scores of the CD group will be significantly lower than the Number/Letter Memory subtest scores of the control group.

HO16: The Picture Memory subtest scores of the CD group will be significantly lower than the Picture Memory subtest scores of the control group.

HO17: The Design Memory subtest scores of the CD group will be significantly lower than the Design Memory subtest scores of the control group.

HO18: The Finger Window Memory subtest scores of the CD group will be significantly lower than the Finger Window Memory subtest scores of the control group.

HO19: The Verbal Learning subtest scores of the CD group will be significantly lower than the Verbal Learning subtest scores of the control group.

HO20: The Sound Symbol Learning subtest scores of the CD group will be significantly lower than the Sound Symbol Learning subtest scores of the control group.

HO21: The Visual Learning subtest scores of the CD group will be significantly lower than the Visual Learning subtest scores of the control group.

HO22: The Story Memory subtest scores of the ODD group will be significantly lower than the Story Memory subtest scores of the control group.

HO23: The Sentence Memory subtest scores of the ODD group will be significantly lower than the Sentence Memory subtest scores of the control group.

HO24: The Number/Letter Memory subtest scores of the ODD group will be significantly lower than the Number/Letter Memory subtest scores of the control group.

HO25: The Picture Memory subtest scores of the ODD group will be significantly lower than the Picture Memory subtest scores of the control group.

H026: The Design Memory subtest scores of the ODD group will be significantly lower than the Design Memory subtest scores of the control group.

H027: The Finger Window Memory subtest scores of the ODD group will be significantly lower than the Finger Window Memory subtest scores of the control group.

H028: The Verbal Learning subtest scores of the ODD group will be significantly lower than the Verbal Learning subtest scores of the control group.

H029: The Sound Symbol Learning subtest scores of the ODD group will be significantly lower than the Sound Symbol Learning subtest scores of the control group.

H030: The Visual Learning subtest scores of the ODD group will be significantly lower than the Visual Learning subtest scores of the control group.

H031: The Story Memory subtest scores of the CD and ODD groups will not be significantly different.

H032: The Sentence Memory subtest scores of the CD and ODD groups will not be significantly different.

H033: The Number/Letter Memory subtest scores of the CD and ODD groups will not be significantly different.

HO34: The Picture Memory subtest scores of the CD and ODD groups will not be significantly different.

HO35: The Design Memory subtest scores of the CD and ODD groups will not be significantly different.

HO36: The Finger Window Memory subtest scores of the CD and ODD groups will not be significantly different.

HO37: The Verbal Learning subtest scores of the CD and ODD groups will not be significantly different.

HO38: The Sound Symbol Learning subtest scores of the CD and ODD groups will not be significantly different.

HO39: The Visual Learning subtest scores of the CD and ODD groups will not be significantly different.

Research Design

A case-control research design was utilized for this study. According to Schlessman and Stolley (1982), case-control designs compare a disorder of interest to a related disorder and a non-clinical control group. Cohen (1992) found that to detect a large difference between the means of three comparison groups, 21 subjects per group are needed. As such, each group in the study contained a minimum number of 21 subjects. The students involved in this study were classified in one of three groups (i.e., CD, ODD, non-clinical controls). Figure 3 presents a schematic representation of the research design.

Figure 3

Schematic Representation of Research Design

WRAML Subtest	CD GROUP	ODD GROUP	CONTROL GROUP
Number/Letter			
Sentence Memory			
Story Memory			
Verbal Memory Index			
Finger Windows			
Design Memory			
Picture Memory			
Visual Memory Index			
Verbal Learning			
Visual Learning			
Sound Symbol			
Learning Index			
General Memory Index			

Population

The participants in this study were high school students (13 - 17 years) who attended a public school system located approximately 30 miles North of New York City. Permission was granted by the Board of Education of the District to involve students in this project. According to recent statistics, the ethnic profile of the District is as follows: 84.9% White, 4.4% Hispanic, 2.8% Black, and 7.8% other groups (3.6% limited English proficiency). The Office of Sponsored Research and Project Planning of the City University of New York also approved this research project on November 10, 1997 (Presented in Appendix E).

Clinical participants were drawn from a population of students who were enrolled in a number of programs in the school system. Initially, at-risk youth who attended a school for children with significant emotional, behavioral, and learning problems or youth who received home instruction due to conduct problems or oppositional behaviors were asked to participate. Other at-risk students who attended special education English classes (grades 9 - 12), Resource Rooms, or Prescriptive Education classes were also asked if they would like to take part in the study. The non-clinical control group consisted of students who attended regular education English classes (grades 9 - 12). Youth who attended advanced classes were not included in the study.

Selection Process

Initially, approximately 225 students in the special education program and 101 students who attended the regular education program were asked to participate. The procedures to be followed and the benefits of participating were explained. Students were informed that they would be able to withdraw from the study at any time without reprimand. Letters to parents/legal guardians (Appendix F) and consent forms for parents and students (Appendixes G and H) were distributed. Students were asked to return the signed consent forms to their teachers if they were interested in participating. Signed consent forms were returned by 66 special education students and 34 students from regular education classes. The percentages of signed consent forms that were returned (approximately 29% for special education students and 33% for regular education students) are typical of the return rates that are associated with this student population.

After informed consent was obtained, the educational records of students were reviewed to obtain information about the participants' date of birth and to rule out mental retardation or a history of significant head trauma. Information regarding medications currently being taken by the students was obtained. Participants were excluded if they met DSM-IV criteria for mental retardation, had a positive history for head trauma, or were taking psychopharmacological medications, since these conditions might affect performance on cognitive tests (Forness, Swanson, Cantwell,

Guthrie, & Sena, 1992; Suhr, Tranel, Wefel, & Barrash, 1997); five at-risk students were currently taking medications (i.e., Ritalin, Prozac) and were not included.

To further control for the potentially confounding effects of comorbid conditions (Hertel, 1997), the investigator administered the Diagnostic Interview for Children and Adolescents-Revised (DICA-R-P; Reich, Leacock, & Shanfield, 1995). CD, ODD, ADHD, and substance abuse disorder modules were completed for each participant by one of his or her teachers or school psychologists. Results suggested that six students did not meet criteria for either CD or ODD. Youth who received positive diagnoses for CD or ODD without comorbidity were included in the selection pool; twenty-six CD cases were identified. According to the criteria listed in the DSM-IV (APA, 1994), three cases were judged to be severe CD and the remaining cases were in the mild to moderate range. Four CD cases were excluded from the study because they also met criteria for potentially confounding comorbid conditions (three students received positive diagnoses for ADHD and one for substance abuse). As such, the names of 22 students were included in the sampling pool for the CD group. Twenty-nine youth met criteria for ODD. Three of these students also met criteria for ADHD and were excluded. Therefore, 26 students were included in the sampling pool for ODD. In a similar vein, non-clinical control subjects were included in the sampling pool if they did not meet criteria for any of the aforementioned

disorders. Since one of the students met criteria for ADHD and had to be excluded, 33 students remained in the sample selection pool for the control group. For the control group, 21 students were randomly selected. To produce a homogeneous number of 21 cases per cell, one student in the CD group and five students in the ODD group were randomly selected and deleted from the sample selection pools of each group.

The major depression and specific phobia modules of the DICA-R-A were then administered to the selected students. Likewise, the Children's Posttraumatic Stress Inventory (CPTSDI; Saigh, 1997) was also administered. It was found that none of the students met criteria for major depression, specific phobia, or PTSD. At this point, the WRAML was administered according to the standardized directions for administration.

Diagnostic Measures

Diagnostic Interview for Children and Adolescents-Revised. The DICA-R (Reich, Leacock, & Shanfield, 1995) is a structured psychiatric interview which is designed to interview children (6 to 17 years) and diagnose specific psychiatric disorders according to DSM-IV criteria. For the current study, selected modules were utilized to determine the presence or absence of CD, ODD, ADHD, specific phobias, mood disorders, and substance-related disorders. Participants who received a positive diagnosis of more than one disorder were excluded from the study as comorbid conditions may confound the results (Hertel, 1997).

Estimates of reliability for the DSM-IV version of the DICA-R were conducted recently. Reich (1997) examined the test-retest reliability of the DICA-R. For youth from 13 to 17 years (n = 48), kappa coefficients of .78 and .82 were reported for ODD and CD modules respectively. Meehan (1998) focused on the test-retest reliability of the DICA-R-P. There were 32 subjects (24 males and 8 females) ranging in age from 7.2 to 16.0 years involved in Meehan's study. The test-retest interval ranged from 18 to 24 days. His results indicated 100% agreement for the ODD module (kappa = 1.0).

Welner, Reich, Herjanic, Jung, and Amado (1987) examined inter-interviewer agreement on the DSM-III version of the DICA for psychiatrically hospitalized youth from 7 to 17 years of age (n = 27). The DICA was administered two times over several days. The following coefficients were reported for the DICA modules: ADHD (kappa = 1.0), CD (kappa = 1.0), affective disorders (kappa = .90). For the ODD group, a kappa coefficient of .79 was observed. Welner et al. also compared inpatient chart diagnoses with those obtained on the first administration of the DICA-C; agreement was reported in 81.5% of the cases. The following coefficients were reported for DICA-C modules: kappa = .52 (affective disorders); kappa = .50 (ADHD); kappa = .43 (CD).

The Children's Posttraumatic Stress Disorder Inventory (Saigh, 1997). The CPTSDI was developed according to the DSM-IV diagnostic criteria for

PTSD. This instrument is comprised of five subtests that are scored on a dichotomous basis (i.e., "1" for the presence and "0" for the absence of symptoms). A preface provides examples of traumatic incidents that can happen to young people. The five subtests assess the major components of PTSD: (1) exposure to a significant trauma outside the range of usual human experience through experiential, vicarious, or verbal mediation; (2) reexperiencing symptoms through recollections or dreams; (3) general affect (avoidance of stimuli associated with the trauma and numbing of affect); (4) persistent symptoms of increased arousal; and (5) significant distress.

Studies regarding the reliability and validity of the DSM-IV version of the *Children's PTSD Inventory* are being conducted at the present time. To date, with a preliminary sample of 41 consecutive stress-exposed cases (Saigh et al., 1998), data indicates 100% interrater agreement (kappa = 1.00, $p < .001$). Agreement between clinician derived diagnoses and diagnoses that were obtained using the Children's PTSD Inventory indicate a kappa coefficient of .85 ($p < .001$). Further data analyses reflect a sensitivity of .90, a specificity of .89, and an overall diagnostic efficiency of .89. Also, a positive predictive power of .90 and a negative predictive power of .89 are observed. Furthermore, data analyses of internal consistency reveal an alpha coefficient of .95.

Social Status Measure

Hollingshead Four Factor Index of Social Status (Hollingshead, 1975). The parents or guardians were asked to complete the Hollingshead demographic questionnaire to determine the SES of participants. The Hollingshead Index is based on the view that social status is a multidimensional concept; the status score of an individual or a nuclear family is estimated by combining information on education, occupation, and marital status. Computed scores range from a high of 66 to a low of 8. Hollingshead lists five SES classes (Class I is the lowest and Class V is the highest). It is assumed that a higher score is indicative of higher SES. Data obtained in 1970 by the United States Census Bureau was analyzed to validate the scales for education and occupation. When the Hollingshead Index was correlated with other SES measures (Gottfried, 1985), high test-retest correlation coefficients (i.e., .67 - .78) were obtained.

Dependent Variable

Wide Range Assessment of Memory and Learning (WRAML; Sheslow & Adams, 1990). The WRAML is a standardized test which is designed to evaluate the ability of school-age children (ages 5-17) to memorize and learn verbal and visual information. This instrument may be particularly useful in identifying the role of memory deficits in children who are experiencing academic difficulties.

The WRAML contains nine subtests, each indicating a norm-referenced score. The subtests are included in the battery to measure verbal and visual immediate memory and learning and delayed recall. Scores for each of the three scales are obtained by combining scores of three subtests to calculate a Verbal Memory Index, a Visual Memory Index, and a Learning Index. After summing these scores, a General Memory Index can be obtained. Four subtests (Verbal Learning, Story Memory, Sound Symbol, and Visual Learning) can assess both immediate and delayed recall.

Reliability coefficients for the nine individual subtests ranged between .78 and .90 (Sheslow and Adams, 1990). Median coefficients for the Verbal Memory Index, the Visual Memory Index, and the Learning Index were .93, .90, and .91, respectively. The coefficient for the General Memory Index was .96. Test-retest reliability was high for both younger and older children. Reliability for all subtests was satisfactory to excellent (except for Sound Symbol which was .61).

To measure criterion-referenced validity of the WRAML, Sheslow and Adams (1990) conducted three studies to ascertain the relationship of the WRAML with standardized instruments. Data indicated that the WRAML is highly correlated with the McCarthy Memory Index and the Stanford Binet Short-Term Memory Index. When the WRAML was correlated with the Wechsler Intelligence Scale for Children-Revised, moderate correlations were obtained. Such results suggest that the WRAML is not just measuring the

cognitive abilities of the subjects. The WRAML scales and subtests are described below:

Verbal Memory Scale

The subtests in the Verbal Memory Scale evaluate a child's abilities on rote memory tasks that increase in semantic complexity. Hypotheses can be formulated about the child's ability to employ language as an aide or detractor in remembering. The authors of the WRAML (Sheslow and Adams, 1990), reported that the median reliability coefficient for this scale was .93.

Number/Letter Memory Subtest. The participant is required to repeat a series of numbers and letters. The number/letter combination was designed to deter chunking of letter patterns or numbers. The median reliability coefficient reported by Sheslow and Adams (1990) was .87.

Sentence Memory Subtest. On this subtest, the participant is asked to repeat meaningful sentences such as, "I like pizza". The sentences become progressively longer until a discontinue criterion is reached. The authors reported a median reliability coefficient of .87 for the subtest (Sheslow & Adams, 1990).

Story Memory Subtest. Two short stories are read and the participant is required to tell as much of the story as he/she remembers in a free recall format. Credit is given for remembering specific words, phrases, or ideas used in the story. In the Story Memory Recognition section of this subtest, details from the story are presented in a multiple-choice format. For this

subtest, the median reliability coefficient reported by Sheslow and Adams (1990) was .86.

Visual Memory Scale

The visual subtests are also constructed along a dimension of increasing meaningfulness and difficulty. The participant is required to respond until a criterion is reached. The authors reported a median reliability coefficient of .90 (Sheslow & Adams, 1990).

Finger Windows Subtest. A plastic card with holes that correspond to numbers is utilized in this subtest. The examiner points to increasingly longer series of holes and the participant is asked to reproduce the sequence. A median reliability coefficient of .81 was reported by Sheslow and Adams (1990).

Design Memory Subtest. Four designs are presented individually and the participant is asked to reproduce each design after a 10-second delay. A visual-motor standard is furnished by the student to avoid confounding perceptual-motor skills deficits. The authors reported a median reliability coefficient of .85 for this subtest (Sheslow & Adams, 1990).

Picture Memory Subtest. This is the first of the nine subtests. After a complex meaningful scene is presented, the participant is asked to look at another similar scene and mark the elements which have been changed in the second picture. The median reliability coefficient of .80 was reported by Sheslow and Adams (1990).

Learning Scale

The subtests on this scale measure performance over trials. The scale is comprised of a verbal, a visual, and a cross-modal task. Sheslow and Adams (1990) reported a median reliability coefficient of .91 for this scale.

Verbal Learning Subtest. A list of simple words is read to the participant and is followed by immediate recall, using a free-recall model. Subsequently, three presentation/recall trials are presented. After the Story Memory Test is administered, the delayed recall trial may be conducted. The median reliability coefficient of .78 was reported by the authors (Sheslow & Adams, 1990).

Visual Learning Subtest. Similar to its verbal counterpart, visual designs are covered and the participant is required to remember where designs are located. Four trials are conducted. To promote learning, the student is given immediate feedback regarding the correctness of the response. A delayed recall trial is available. For this subtest, Sheslow & Adams (1990) reported the median reliability coefficient of .88 .

Sound Symbol Subtest. On this cross-modal task (i.e., visual-verbal), the learner is asked to recall sounds associated with symbols. Again, four independent trials with immediate feedback and a delayed recall trial are provided. The median reliability coefficient of .90 was reported by Sheslow and Adams (1990).

Interscorer Reliability

Data indicated that there is minimal interrater error in scoring the WRAML. In almost all of the subtests, minimal judgment is required in assessing the responses to the WRAML. To measure interscorer reliability, 82 cases were randomly selected and independently scored by two trained individuals. Sheslow and Adams (1990) obtained an interscorer reliability coefficient of .99 between the total scores received by the independent scorers.

Demographic Information

Table 8 presents the demographic information of participants by comparison group. A series of chi-square analyses noted that the demographic characteristics of the three groups did not differ significantly with regard to SES, ethnicity, and gender. Specifically, based on the responses of parents to the Hollingshead Four Factor Index (presented on page 105), SES scores were obtained; the relationship of these scores to the WRAML were subsequently studied. Since results indicated that the Hollingshead scores were not significantly related to the WRAML scores, $\mathbf{X}^2$ (6, $\underline{N}$ = 63) = 3.98, $\underline{p}$ = .678, the Hollingshead was not used as a covariate. Chi-square analyses also revealed no significant differences among the groups with respect to ethnicity, $\mathbf{X}^2$ (6, $\underline{N}$ = 63) = 4.64, $\underline{p}$ = .590, and gender, $\mathbf{X}^2$ (2, $\underline{N}$ = 63) = 3.55, $\underline{p}$ = .168.

Table 8 Demographic Information by Comparison Group

	Total Participants (N = 63)	CD (N = 21)	ODD (N = 21)	NC (N = 21)
Hollingshead Socioeconomic Status				
Class I	-----	-----	-----	-----
Class II	4 (6.3%)	2 (9.5%)	2 (9.5%)	-----
Class III	12 (19.0%)	4 (19.0%)	3 (14.3%)	5 (23.8%)
Class IV	34 (54.0%)	11 (52.4%)	13 (61.9%)	10 (47.6%)
Class V	13 (20.6%)	4 (19.0%)	3 (14.3%)	6 (28.6%)
Ethnicity				
African-American	1 (1.6%)	1 (4.8%)	------	-----
White	55 (87.3%)	17 (81.0%)	19 (30.2%)	19 (90.5%)
Hispanic	4 (6.3%)	1 (4.8%)	2 (3.2%)	1 (4.8%)
Other	3 (4.8%)	2 (9.5%)	------	1 (4.8%)
Gender				
Male	31 (49.2%)	11 (52.4%)	13 (61.9%)	7 (33.3%)
Female	32 (50.8%)	10 (47.6%)	8 (38.1%)	14 (66.7%)

Table 9 presents the means and standard deviations for the ages of participants by comparison group. Results of chi-square analyses revealed no significant differences among the three comparison groups with respect to mean age: X^2 (64, $\underline{N}$ = 63) = 68.70, $\underline{p}$ = .321.

Table 9

Mean Ages and Standard Deviations by Comparison Group

Total Participants (N = 63)		CD (N = 21)		ODD (N = 21)		NC (N = 21)	
Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
16.45	1.06	16.57	1.16	16.58	.95	16.19	1.05

Chapter 5

Results

This chapter presents the data analysis procedures and results. In addition, descriptive information regarding the four WRAML Index scores and nine subtest scores of the three experimental groups will be given. The results of MANOVAS, univariate F tests, and Bonferroni post hoc analyses will also be specified.

Statistical Analyses

Initially, following the procedures indicated in the WRAML Administration Manual (Sheslow & Adams, 1990), the raw scores were converted to scaled scores that corresponded to each youth's age (each subtest has a mean scaled score of 10, with a standard deviation of 3). After the scaled scores were calculated, the three scaled scores for each WRAML Index were summed to obtain the Verbal, Visual, and Learning Index scores. The General Memory Index score was obtained by adding the sum of scaled scores for the three Indexes (each Index has a mean scaled score of 100, with a standard deviation of 15). The mean scores and standard deviations for the four Index scores of the WRAML by experimental group were calculated and are described in Table 10.

Table 10

Means and Standard Deviations for Index Scores by Diagnostic Group

WRAML Index	CD (n = 21)		ODD (n = 21)		Control (n = 21)	
	Mean	SD	Mean	SD	Mean	SD
Verbal Memory	80.90	16.17	79.09	9.07	109.52	7.52
Visual Memory	101.19	15.43	101.85	12.53	117.76	10.47
Learning	89.71	13.18	86.85	13.12	108.66	2.00
General Memory	89.23	10.36	86.95	9.71	114.66	8.36

Univariate F tests were calculated to examine the group differences on the Verbal Memory, Visual Memory, Learning, and General Memory Index scores. Results of these analyses are presented in Table 11. As may be noted from this table, significant group differences were observed on the four WRAML Indexes.

Table 11

Univariate Analysis of Variance Results for WRAML Index Scores

WRAML Index	MS Between	MS Within	F (2, 60)	p
General Memory	4969.71	90.59	54.85	<.001**
Verbal Memory	6118.77	133.61	45.79	<.001**
Visual Memory	1848.06	168.46	10.97	<.001**
Learning	2950.53	163.45	18.05	<.001**

** $p < .01$

Given this information, Bonferroni post hoc analyses were performed to indicate the direction of group differences of the four Index scores (presented in Table 12). Results revealed that the Index scores of the CD group were significantly lower than those of the non-clinical control group. Therefore, Hypotheses 1, 2, 3, and 4 were supported. Similarly, post hoc analysis procedures suggested that the Index scores of the ODD group were significantly lower than those of the control group. As such, Hypotheses 5, 6, 7, and 8 were supported. Results of Bonferroni post hoc analyses also confirmed that the four Index scores of the CD and ODD groups were not

significantly different. Therefore, Hypotheses 9, 10, 11, and 12 were also supported.

Table 12

Results of Dunn Bonferroni Post Hoc Analysis Procedures for Index scores

Index Scores	Comparison Groups		
	CD v. NC	ODD v. NC	CD v. ODD
Verbal Memory Index	CD < NC**	ODD < NC**	N.S.
Visual Memory Index	CD < NC**	ODD < NC**	N.S.
Learning Index	CD < NC**	ODD < NC**	N.S.
General Memory Index	CD < NC**	ODD < NC**	N.S.

** $p < .01$

The scaled scores of the subtests of the WRAML were analyzed to confirm group differences on each of the nine subtests. The means and standard deviations of each of the subtest scores for each comparison group are presented in Table 13.

Table 13

Means and Standard Deviations for WRAML Subtest Scores

WRAML Subtest	CD (n = 21)		ODD (n = 21)		NC (n = 21)	
	Mean	SD	Mean	SD	Mean	SD
Story Memory	5.09	2.25	4.28	1.79	9.14	2.05
Sentence Memory	8.09	2.23	7.04	2.37	12.95	1.39
Number/Letter	9.04	2.17	8.90	1.78	12.42	2.03
Picture Memory	9.47	3.14	9.14	3.13	12.61	2.72
Design Memory	10.95	3.58	11.95	1.82	12.42	2.18
Finger Windows	9.61	2.88	8.90	2.89	11.57	2.69
Verbal Learning	6.28	2.19	5.19	2.61	9.90	2.30
Sound/Symbol	9.04	1.98	9.23	1.51	11.90	2.23
Visual Learning	10.09	3.09	9.96	3.10	12.04	3.07

Given that the WRAML is structured to provide three separate Index scores (Verbal, Visual, Learning Indexes), three MANOVAS were effected to examine the group differences of the verbal memory, visual memory, and learning subtests. On the first MANOVA, group differences on verbal

memory subtests (i.e., Story Memory, Sentence Memory, Number/Letter) were examined. Data indicated significant differences among the comparison groups on the verbal subtests, based on a Wilks Lambda test, $\underline{F}$ (6, 116) = 20.55, $\underline{p}$ < .000. Likewise, significant differences were apparent on the second MANOVA that compared the WRAML visual memory subtests (i.e., Picture Memory, Design Memory, Finger Windows), using a Wilks Lambda test, $\underline{F}$ (6, 116) = 4.31, $\underline{p}$ < .002 . The third MANOVA confirmed that there were significant differences among the groups on the three WRAML learning subtests (i.e., Verbal Learning, Sound Symbol, Visual Learning), according to the results of a Wilks Lambda test, $\underline{F}$ (6, 116) = 7.92, $\underline{p}$ < .000. To further examine group differences, a series of one way ANOVAs was conducted as post hoc analyses. Table 14 represents the univariate $\underline{F}$ test results. As shown in this table, significant group differences were apparent on the nine WRAML subtests.

Table 14

Univariate F test results for WRAML Subtests (2,60 Degrees of Freedom)

WRAML Subtest	MS Error	F	p
Verbal Memory Subtests			
Story Memory	4.17	34.03	<.001**
Sentence Memory	4.19	49.68	<.001**
Number/Letter	4.03	20.72	<.001**
Visual Memory Subtests			
Picture Memory	9.04	8.54	.001**
Design Memory	6.98	4.66	.013**
Finger Windows	7.99	5.00	.010**
Learning Subtests			
Verbal Learning	5.65	22.60	<.001**
Visual Learning	9.55	3.53	.035*
Sound/Symbol	3.74	14.31	<.001**

* = p < .05, ** = p < .01

Thereafter, a series of Bonferroni post hoc analyses was effected that (1) compared WRAML subtest scores of CD and ODD groups to the control group and (2) compared WRAML subtest scores of CD and ODD groups to each other. Results of Bonferroni post hoc analyses (presented in Table 15) indicated that the WRAML subtest scores of the CD group were significantly lower than those of the non-clinical control group. As such, Hypotheses 13, 14, 15, 16, 17, 18, 19, 20, and 21 were supported. In support of Hypotheses 22, 23, 24, 25, 27, 28, 29, and 30, the scores of the ODD group on the Story Memory, Sentence Memory, Number/Letter Memory, Picture Memory, Finger Window Memory, Verbal Learning, Sound Symbol Learning, and Visual Learning subtests were significantly lower than the scores of the control group. In contrast, the ODD group did not perform significantly below the control group on the Design Memory subtest. Therefore, Hypothesis 26 was rejected. Further Bonferroni post hoc analyses tested for group differences between CD and ODD youth. No significant differences were revealed between the two groups on any of these subtests of the WRAML. These results lend support to Hypotheses 31, 32, 33, 34, 35, 36, 37, 38, and 39.

Table 15

Results of Dunn Bonferroni Post Hoc Analysis Procedures for subtests

WRAML Subtests	Comparison Groups		
	CD v. NC	ODD v. NC	CD v. ODD
Story Memory	CD < NC**	ODD < NC**	N.S.
Sentence Memory	CD < NC**	ODD < NC**	N.S.
Number/Letter	CD < NC**	ODD < NC**	N.S.
Picture Memory	CD < NC**	ODD < NC**	N.S.
Design Memory	CD < NC**	N.S.	N.S.
Finger Windows	CD < NC*	ODD < NC**	N.S.
Verbal Learning	CD < NC**	ODD < NC**	N.S.
Sound Symbol	CD < NC**	ODD < NC**	N.S.
Visual Learning	CD < NC*	ODD < NC*	N.S.

* = $p < .05$, ** = $p < .01$

Chapter 6

In this chapter, a discussion of the observed results will be presented. Furthermore, the theoretical and clinical significance of the study, as well as the potential limitations will be addressed. Recommendations for future research in the area of adolescent psychopatholgy will also be suggested.

Summary and Conclusions

This study compared and contrasted the performance of CD and ODD adolescents and their non-clinical peers on the WRAML. Approximately 225 at-risk students who attended special education programs and 101 students who attended regular education programs were asked to participate (students in advanced classes were not included). The DICA-R-A-P was administered to identify adolescents who met criteria for CD and ODD or other disorders. To control for potentially confounding effects, participants were excluded if they met DSM-IV criteria for mental retardation, had a positive history for head trauma, or were taking psychopharmacological medications. Similarly, youth meeting criteria for a number of comorbid conditions (i.e., ADHD, major depression, substance abuse, specific phobia, PTSD) were also excluded. Each comparison group contained 21 participants. Chi-square analyses revealed that the three comparison groups were not statistically different with regard to ethnicity, SES, gender, and age.

Separate ANOVAs were computed for the four WRAML Index scores. Since these analyses revealed significant group differences on the four WRAML indexes, Bonferroni post hoc analyses were effected to determine where significant differences were indicated. Results revealed that CD and ODD youth scored significantly lower than their non-clinical peers on the General Memory, Verbal Memory, Visual Memory, and Learning Indexes. The scores of CD and ODD groups were not significantly different. Ultimately, the results of three separate MANOVAs indicated that there were significant differences across the three groups of WRAML subtests. Univariate F tests were then effected and revealed significant differences across each of the nine subtests. Bonferroni post hoc analyses determined that CD and ODD adolescents performed significantly below control participants on WRAML subtests (except for the Design Memory subtest). No significant differences were observed in the WRAML scores of CD and ODD participants.

Discussion

The DSM was designed to provide explicit diagnostic criteria to facilitate the study of mental disorders to advance the understanding and definitions of disorders (Kazdin, 1995). According to Anderson, Williams, McGee, and Silva (1989), "the identification of factors that discriminate among psychiatric disorders is an important step in establishing the validity of diagnostic categories" (p. 982). Since the introduction of the OD classification in the DSM-III (APA, 1980), researchers have argued about

whether or not there was sufficient justification for distinguishing between OD and CD (Fergusson et al., 1994). Rutter (1981) posited, "the one essential criterion for the scientific validity of psychiatric diagnostic categories is that the categories be shown to differ in terms of variables other than the symptoms that define them" (p. 327). In this initial comparison of the cognitive abilities of CD and ODD adolescents, statistical analyses indicated that the memory functioning of CD and ODD youth were not significantly different. These nonsignificant differences do not lend support to the differential validity of CD and ODD as distinct diagnostic categories. In this context, Quay (1986) noted that "a disorder is empirically validated by determining its relationship to other variables. Of particular concern is differential validity; two putatively separate disorders ought not to be related in the same way to the same variables" (p. 37). Analogously, the non-significant CD and ODD variations support the concerns of Werry, Reeves, and Elkind (1987) who found little evidence (independent of the actual symptomology) to confirm the validity of the DSM-III CD and OD classifications. Werry and colleagues further stated that contrasts with normal children may help to generate hypotheses, but cannot actually validate one diagnosis against another. In view of the above, the lack of variations between the WRAML scores of the CD and ODD groups challenges the differential validity of these classifications. It may also be said that the lack of CD and ODD differences suggests that the distinction

between the classifications is not warranted when memory-related tasks are considered.

On the other hand, disagreements about the classification of disruptive behavior disorders may indicate diverse approaches to the study of the disorders (Loeber, Lahey, & Thomas, 1991). In the DSM-III-R (APA, 1987), the distinction between CD and OD was based primarily on the severity of the symptoms (Frick et al., 1991). Loeber and colleagues (1991) posited that one of the ways that the distinction between ODD and CD can be conceptualized is that they are distinct disorders, but have one or more etiological factors in common. After reviewing the literature, these authors concluded that "CD and ODD are strongly and developmentally related but clearly different" (p. 379). In 1993, Loeber et al. compared the diagnostic validity of the DSM-III-R diagnoses of CD and ODD with an alternative single disruptive behavior syndrome that was subdivided into three levels of severity (i.e., modified oppositional defiant disorder, intermediate conduct disorder, and advanced conduct disorder). These authors found that most DSM-III-R symptoms discriminated between these disorders, but that exceptions were observed. They concluded that "although the DSM-III-R symptoms demonstrated significant discriminative validity, the symptoms for the alternative option were slightly more useful" (p. 405). The DSM-IV Task Force on Mental Disorders and members of the DSM-IV Work Groups reviewed the evidence for integrating CD and ODD into a single disruptive

behavior classification with a multilevel approach (DSM-IV sourcebook; Loeber et al., 1998). Input was obtained from field trials and the advice from expert practitioners was also considered. It was concluded that ODD and CD should not be integrated into a single category with differing levels of severity. One of the committee's findings was that the discriminative utility of oppositional symptoms "can best be gauged by their ability to distinguish nondiagnosed from diagnosed youth (the discrimination between ODD and CD is less important, because most youth who advance to CD continue to display ODD symptoms)" (Loeber et al., 1998, p. 473). In a similar vein, Anderson, Williams, McGee, and Silva (1989) examined the relationships between the cognitive and social correlates of DSM-III disorders (i.e., ADDH, CD, OD, and anxiety disorders). The results obtained by Anderson and colleagues suggested that "the disorder/no disorder distinction has greater validity than interdisorder distinctions" (p. 845).

Viewed along these lines, one might question whether or not it is logical to expect this level of differentiation of the variables of the CD and ODD classifications. Since the DSM-IV (APA, 1994) states that "all of the features of Oppositional Defiant Disorder are usually present in Conduct Disorder" (p. 93), it is reasonable to assume that CD and ODD youth experience similar cognitive impairments. Although the results of this study do not support the differential validity of the CD and ODD classifications, they do provide evidence to differentiate CD and ODD adolescents from their

non-disordered peers. Loeber, Lahey, and Thomas (1991) also drew attention to an important issue in the decision to maintain or drop the distinction between the CD and ODD categories. They reasoned that research has shown that treatment studies of CD generally do not successfully reduce CD symptoms (Kazdin, 1987). Contrasting results have been reported for ODD youth (Patterson, 1982) where, in some cases, interventions have successfully treated ODD symptoms. Therefore, retaining the distinction between CD and ODD helps to provide more effective programs to modify disruptive child behaviors. Given these points and the observed findings, it may be said that the reported differences illustrate the need for studies that address and attempt to solve the complex development of conduct problems in children.

Memory Functioning of CD and ODD Youth

CD and ODD groups obtained their lowest scores and scored significantly below the national norm on the Verbal Memory Index (9th and 8th percentiles, respectively). These scores may be interpreted to indicate that CD and ODD youth experienced significant deficits in processing and/or recalling verbal information. In contrast, control participants performed significantly better on this scale as their mean score fell in the 73rd percentile. These results are consistent with the findings of prior investigations that suggested that CD youth experienced verbal integration and verbal memory deficits. Ollendick (1979) reported that the WISC-R

Verbal IQs of CD youth were significantly lower than their Performance IQs. Moreover, CD youth performed at their lowest level on subtests that tapped verbal comprehension and long-term verbal memory skills. Data obtained by Culberton et al. (1989) concurred with Ollendick's finding that CD youth performed below average on WISC-R subtests that assessed verbal memory. In a similar vein, an analysis of data generated by Hodges and Plow (1990) indicated that 26.1% of CD children manifested verbal skill deficits. It is interesting to note that a further analysis of the scores obtained in this study revealed that the standard deviation of the CD group on the Verbal Memory Index (16.17) was considerably higher than the standard deviations of the ODD and control groups (9.07 and 7.52, respectively). These scores indicate that the verbal memory of CD participants was much more variable than the verbal memory of the ODD and control groups.

Statistical analyses also revealed that the CD and ODD youth performed significantly below their non-clinical peers on the Visual Memory Index. These findings are consistent with the results reported by Even, Kipper, and Yehuda (1988) who determined that the ability of CD youth to recall visual designs was considerably lower than the recall ability of their non-clinical peers. These authors did not specify whether or not participants with comorbid diagnoses were excluded. On the other hand, Hodges and Plow (1990) reported that CD or OD children did not evidence significant nonverbal deficits. In considering the reasons for the divergence in the

findings of Hodges and Plow (1990), it must be taken into account that many of the participants in the Hodges and Plow study received more than one diagnosis. In this investigation, participants with comorbidity were excluded, which might have affected the results.

CD and ODD youth performed comparatively better on visual memory tasks than on verbal memory tasks. On the Visual Memory Index, the scores of CD and ODD youth fell within the average range (53rd percentile) and were significantly higher than the scores that they obtained on the Verbal Memory Index. Sheslow and Adams (1990) reported that the Verbal Memory Index is significantly related to the WISC-R Verbal IQ and that the Visual Learning Index is significantly related to the WISC-R Performance IQ. Research studies have fairly consistently reported a significant difference between the WISC-R Performance and Verbal IQ scores of CD youth (Ollendick, 1979; Culberton, Feral, & Gabby, 1989). Ollendick (1979) interpreted a significant Performance-Verbal discrepancy as evidence that these children "function better nonverbally than verbally" (p. 567).

On the WRAML Learning Index, CD and ODD groups scored significantly lower than their counterparts. Whereas the mean Learning Index scores of CD and ODD groups were below average (23rd and 18th percentiles, respectively) the mean Learning Index score of the NC group was above average (70th percentile). Various investigators have reported that CD youth experience significant impairments in scholastic achievement.

Empirical data obtained by Culberton and colleagues (1989) indicated that CD youth have difficulty with retention of information associated with school learning. Analogously, Kazdin (1995) reported that "children and adolescents with conduct disorder behaviors are also likely to show academic deficiencies, as reflected in achievement levels, grades, and specific skills areas, particularly reading" (p. 14). Likewise, Schachar & Wachsmuth (1990) found that the scores of CD and OD males were lower than those obtained by normal controls in reading, spelling, and arithmetic. As such, Schachar and Wachsmuth concluded that there is an association between academic underachievement and CD and OD. In a similar vein, Braggio et al. (1993) observed that CD youth scored significantly lower than control participants on all subtests of a standardized achievement test. Given the extant findings and the CD and OD literature, it appears that verbal deficits may contribute to school failure.

An in-depth analysis of the WRAML subtest scores of the three comparison groups indicated that CD and ODD youth scored significantly lower than their non-clinical peers on WRAML subtests. As stated in the WRAML administration manual (Sheslow & Adams, 1990), the semantic complexity of the subtests in the Verbal Memory Index are in the following order: Number/Letter, Sentence Memory, and Story Memory. An examination of the means of the verbal subtests revealed that CD and ODD youth did best on the Number/Letter subtest, which demands rote memory

of numbers and letters. The poorest performance of CD and ODD groups was on the Story Memory subtest where participants were asked to recall two stories. Consequently, within the verbal area, it appears that the more complex and lengthy the material to be remembered, the greater the deficits exhibited by CD and ODD youth.

Data generated in this investigation suggest that CD and ODD youth performed comparatively better on visual memory tasks than they did on verbal memory tasks. Analogously, on all subtests of the Visual Memory Scale, CD and ODD youth scored within normal limits and significantly higher than they had performed on the Verbal Memory Scale. It is interesting to note that the Design Memory subtest is the only subtest that did not discriminate between ODD youth and their counterparts. When comparing the subtest scores on the Learning scale, it is evident that CD and ODD adolescents performed below average on the Verbal Learning subtest when they were asked to retain and learn verbal material. However, on the Visual Learning subtest, which is similar to its verbal counterpart (except that the student is asked to recall visual stimuli), CD and ODD youth scored within normal limits. Likewise, on the Sound/Symbol subtest, which is a cross-modal (i.e., visual-verbal) task, the mean scores of the CD and ODD groups were within normal limits. Although the memory and learning abilities of CD and ODD adolescents were significantly below those of their non-clinical peers, their performance was much better when some type of

visual cue was given. Here again, this finding is consistent with results that were reported in previous studies (Ollendick, 1979; Culberton et al., 1989, Schachar & Wachsmuth, 1990).

It is important to note that the WRAML norms are representative of the national population regarding the age, gender, ethnicity, regional residence and metropolitan/non metropolitan residence of participants. The school district involved in this study is located in a largely residential community. According to a recent report, these students come from homes where the educational level is high; statistics on the education of the adult population indicated that 33.3% of the parents completed four or more years of college. For the year 1996-1997, on the Scholastic Aptitude Test, the Verbal and Math scores of these students were higher than national and New York State norms. On the Scholastic Aptitude Subject Test, these students scored higher than national and New York State norms in all academic areas, except Spanish. The high achievement levels of these students may account for the above-average scores obtained by the control group on the WRAML.

Clinical Significance

From a clinical point of view, students involved in this project were interviewed to identify the presence or absence of psychiatric morbidity. The students and their parents/legal guardians were verbally informed about the outcome of the interviews. In the event that positive diagnoses were

apparent, referrals were made for mental health services. Therefore, students had an opportunity to be involved in treatment programs which assist in reducing psychiatric symptoms. As such, the provision of comprehensive treatment programs that focus on all aspects of functioning (e.g., academic, affective, and cognitive) may serve to offset the serious consequences that are associated with CD and ODD or other disorders.

Taking into account the severe verbal deficits exhibited by CD and ODD youth, individualized educational programs that target such deficits might be implemented. As such, CD and ODD youth might be better able to learn verbal material if lessons are presented in shorter segments and if feedback is given more frequently. Also, taking into account the comparatively better visual memory skills of CD and ODD youth, it might be worthwhile to incorporate visual cues (e.g., graphs, videos) when verbal material is presented.

Theoretical Significance

From a theoretical point of view, this research study yields a number of important contributions regarding CD or ODD adolescents. In research on memory, most contemporary studies are not centered on children (Sheslow & Adams, 1990). This is one of the first empirical studies to provide information regarding the memory and learning impairments associated with CD and ODD youth. It is anticipated that these results will provide a practical method to develop theories and hypotheses related to the ability of

adolescents to actively memorize and learn verbal and visual material.

It is important to note that the studies referred to in this paper used either DSM-III or DSM-III-R criteria to diagnose psychiatric disorders. Due to the lack of sufficient research data, many decisions made by the DSM-III Task Force to develop diagnostic criteria relied on the clinical judgment and experience of the committee members. As stated by Widiger, Frances, Pincus, Davis, and First (1991), "progress in developing a valid nomenclature is facilitated to the extent that it is informed and guided by empirical research" (p. 286). Therefore, the DSM-IV criteria for CD and ODD were based on literature reviews, data reanalyses, and field trials and relied on empirical data to support the revisions. In view of these points, these results provide more empirical data describing the unique psychiatric problems of youth who meet DSM-IV criteria for CD and ODD.

The results of the study also provide a more comprehensive understanding of students' cognitive abilities. The comparisons between the Verbal and Visual Index scores of CD and ODD adolescents suggest that individuals with CD or ODD suffer specific information processing weaknesses in the verbal area (Sheslow and Adams, 1990). Additionally, this information expands our understanding of the memory functioning of children and, therefore, might stimulate further research. The results also add to the field of data involving the standardized testing of the memory performance of adolescents.

Limitations

It must be taken into account that this sample is highly representative of a middle-class, suburban population. For example, 87.3% of the students involved in the study were Caucasian and only 12.7% were from minority backgrounds. None of the participants were from the lowest socioeconomic group. As such, the external validity of the study may be limited to youth from similar demographic backgrounds. Future research might attempt to replicate this study with divergent populations (i.e., inner-city youth).

The current study differed from previous studies in many respects. First, none of the studies that were described in the literature review controlled for the potentially confounding effects of comorbidity (Ollendick, 1979; Even, Kipper, & Yehuda, 1988; Culberton, Feral, & Gabby, 1989; Hodges & Plow, 1990; Schachar & Wachsmuth, 1990). The sample pool in this study was carefully selected to exclude students who met criteria for comorbid conditions. Consequently, this is one of the first studies to present evidence that pure cases of CD and ODD adolescents performed significantly below their non-clinical peers on memory and learning tasks. While this method offers considerable merit from a theoretical perspective, the external validity of these results may be limited to CD and ODD adolescents without comorbid disorders. Finally, as the principal investigator administered the DICA-R-A-P and the CPTSDI, the possibility of an examiner bias effect is acknowledged.

Future Research

Given the significant data generated by this investigation, a number of recommendations for future research are suggested. These recommendations are as follows:

1. Research has shown that different aspects of memory relate to academic achievement at different age levels (Sheslow & Adams, 1990). The results of this investigation add to research concerning the relationship of memory, academic achievement, and age. Since this investigation only involved adolescents (13 to 17 years of age), these results may not be generalizable to CD or ODD youth of different ages. Using a similar methodology, it is recommended that future researchers might conduct a follow-up study involving CD and ODD children between the ages of 5 to 12 years. Such data would provide a broader base of information on which to formulate conclusions about the cognitive abilities of CD and ODD youth.

2. Future researchers might also wish to conduct more in-depth investigations regarding specific verbal deficits of CD and ODD adolescents. It would be interesting to further explore the theory suggested by the current results (i.e., the more lengthy and complex the verbal material, the less efficient the memory abilities of CD and ODD youth).

3. Follow-up studies might also consider the discrepancies between the abilities of CD and ODD youth to learn verbal material with or without

visual cues. This information might serve to implement new teaching methods for assisting children in learning verbal material.

4. Since CD and ODD adolescents achieved their highest scores on the Design Memory subtest (where the individual is asked to remember and draw a design), it is useful to consider whether or not incorporating graphomotor skills in the academic activities might enhance students' ability to retain and learn information. As such, future studies might test this hypothesis.

5. It would be of value to explore the theory proposed by Hirschi and Hindelang (1977) that verbal deficits often result in academic failure which then might contribute to the development of conduct problems and antisocial behaviors. Future studies might examine whether or not improving the memory abilities of CD and ODD youth would decrease such behaviors.

6. Future research should attempt to compare CD and ODD youth with other psychiatric disorders (e.g., ADHD, major depression, PTSD). Such findings would supplement our understanding of memory impairments across diagnostic categories.

Appendix A

American Psychiatric Association

1400 K Street, N.W.
Washington, D.C. 20005
Telephone 202.682.6000
Fax 202.682.6850
E-mail apa@psych.org
Internet: www.psych.org

August 8, 1997

Maria Gershon
307 Myrtle St.
Haworth, New Jersey 07641

Dear Ms. Gershon:

I am responding to your recent request to use **diagnostic criteria for Conduct Disorder and Oppositional Defiant Disorder** from the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition in Audio tapes.

Permission is **granted** under the following conditions:

- Permission is nonexclusive and limited to the single use specified in your letter;
- Use is limited to the English language only; and
- Permission must be requested for subsequent uses (including subsequent editions)

The APA's Board of Trustees set policy and guidelines for handling requests to reprint from DSM-IV several years ago. Authors/editors requesting permission to reprint material that will be used in books and plan to be sold are charged fees based on the amount of material they wish to reprint. Fees are not assessed for educational or training uses.

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Sincerely,

Ronald E. McMillen /ib

Ronald E. McMillen
Director of Publications

Enclosure

Appendix B

WORLD HEALTH ORGANIZATION **ORGANISATION MONDIALE DE LA SANTE**

Téléphone Central/Exchange: 791. 21.11
Direct: 791 24 06

With the compliments
of the
Director-General
(for your information)

Avec les compliments
du
Directeur Général
(pour votre information)

Dr P.A. Butler, Chief, Office of Publications

Ms Maria Gershon
307 Myrtle Street
Haworth
New Jersey 07641
Etats-Unis d'Amérique

9 September 1997

Perm No. 97.180 - ICD-10 diagnostic criteria attached.

CH-1211 GENEVA 27-SWITZERLAND Telegr.: UNISANTE-GENEVA Telex: 415416 OMS Fax 791.07.46 CH-1211 GENEVE 27-SUISSE Télégr.: UNISANTE-GENEVE

Appendix C

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January 22, 1998

Maria Gershon, M.S.
307 Myrtle Street
Haworth, New Jersey 07641

Reference

ISBN/Journal:	*Journal of Child Psychology & Psychiatry*, Vol. 34, (1993)
Author:	Cohen, et.al.
Title:	"An Epidemiological Study of Disorders in Late Childhood and Adolescence -I. Age- and Gender-Specific Prevalence"
Selection/pp.:	Figures 5 and 6

Use

University/College: Graduate School and University Center of the CUNY

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M.P. Anderson
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Appendix D

United States
Government
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Washington, DC 20402

ASSISTANT PUBLIC PRINTER
(Superintendent of Documents)

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GPO Form 3890
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Appendix E

THE
GRADUATE SCHOOL
AND
UNIVERSITY CENTER
THE CITY UNIVERSITY OF NEW YORK

OFFICE OF RESEARCH AND UNIVERSITY PROGRAMS
SPONSORED RESEARCH
33 WEST 42 STREET, NEW YORK, NY 10036-8099
212 642-2058 FAX 212 642-2546

November 13, 1997

Ms. Maria Gershon
Educational Psychology

Dear Ms. Gershon:

At its November 10, 1997 meeting, the Committee on the Protection of Human Subjects reviewed and approved your resubmission entitled "A Comparative Analysis of WRMAL Performance Among Adolescents with Conduct Disorder or Oppositional Defiant Disorder."

This approval is effective for one year, and your approval must be reviewed annually should your research extend beyond one year. Please be advised that any changes made to your proposal must receive Committee approval.

The Office of Protection from Research Risks of the Department of Health and Human Services requires consent forms to bear an approval and expiration date. Please refer to the enclosed dated form which must be used in obtaining consent. If you retype the consent form, it must be resubmitted to Sponsored Research so that the approval and expiration dates are reaffixed.

Sincerely,

Hilry Fisher

Hilry Fisher
On Behalf of the Committee

c: Philip Saigh

Enclosure

Appendix F

September, 1997

Dear Parents,

I am a doctoral student at the Graduate School and University Center of The City University of New York. I am conducting a study which will help evaluate children's ability to actively learn and memorize diverse information and how behavior may impact on memory.

Students will be seen during school hours (Study Hall). A diagnostic interview will be administered in order to identify specific patterns of behavior which may impact on intellectual performance. Selected students will then be asked to complete a standardized test of memory. Typically, the memory test will require the student to repeat statements which become progressively longer, starting with a brief statement such as "I like pizza." Reading a paragraph and being asked questions about the setting or characters in the paragraph and recalling shapes after a brief exposure are other types of questions included in the memory test.

All data gained from this study will be analyzed statistically. Information concerning individual students will be treated as confidential and will not become part of the students' records. The information gained from this study will be useful in planning educational programs for students. The results of the study will be available through the Office of Psychological Services which is located at

Enclosed is a consent form allowing your child to take part in this study. If you have no objections to your child's participation, please sign and return the consent form at your earliest convenience. If you would like to have additional information regarding this project, please call me at during school hours. If you have any questions concerning your rights as a participant in this study, please call Sponsored Research, Graduate School and University Center/CUNY at 212-642-2059

Thank you for your consideration.

Sincerely,

Maria Gershon

Maria Gershon, M.S.
Certified School Psychologist

Appendix G

THE
GRADUATE SCHOOL
AND
UNIVERSITY CENTER
THE CITY UNIVERSITY OF NEW YORK

PH.D. PROGRAM IN EDUCATIONAL PSYCHOLOGY
33 WEST 42 STREET NEW YORK, NY 10036-8099
212 642-2261

Approved: 11/10/97
Expires: 11/11/98

PARENTAL CONSENT

I have reviewed the letter and consent form concerning the investigation of memory and learning. I understand that my child does not have to participate in this study and that any student who agrees to participate may withdraw from the study at any time without consequences. I have been assured that all data gained from this study will be treated as confidential; results will not become part of my child's record. I also understand that the test results will be shared with my child and me. I will be advised about the presence or absence of disorders. If necessary, appropriate referrals for treatment will be recommended. It is further understood that the results of this study may be published in a scientific publication and that the names of the participants will not be revealed.

I understand my rights and I voluntarily consent to have my son or daughter participate in this study. If I have any questions concerning this research, I will contact Maria Gershon at . NY . If I have any questions concerning my rights as a participant in this study, I will call Sponsored Research, Graduate School and University Center, CUNY (212-642--2059).

Parent's Signature

Date

Child's Name

Appendix H

THE
GRADUATE SCHOOL
AND
UNIVERSITY CENTER

THE CITY UNIVERSITY OF NEW YORK

PH.D. PROGRAM IN EDUCATIONAL PSYCHOLOGY

33 WEST 42 STREET, NEW YORK, NY 10036-8099
212 642-2261

Approved: 11/10/97
Expires : 11/11/98

STUDENT'S CONSENT

I have reviewed the letter and consent form concerning the investigation of memory and learning. I understand that I do not have to participate in this study and that any student who agrees to participate may withdraw from the study at any time without consequences. I have been informed that information obtained will be treated as confidential and will not become part of my school records. I have also been informed that the test results will be shared with my parents and me. I realize that the results of this study may be published in a scientific magazine. The names of the students that participate will not be mentioned.

I understand my rights and freely agree to participate in this study. If I would like to have additional information concerning this project, I will contact Mrs. Gershon at during school hours.

Student's Signature

Date

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