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Peer relations of children with attention deficit hyperactivity disorder

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Peer relations of children with attention deficit hyperactivity disorder

Abstract

This paper's main focus is on the peer relations of children with ADHD. Many interventions are used with children who have ADHD. One of the most widely used intervention is medication. The drug that is most associated with ADHD is methylphenidate or Ritalin. Medication, which can reduce some problematic behaviors associated with ADHD, has not been found to be very beneficial in peer relations.

Children who have ADHD are at risk for later psychopathology (mental disorders), among other problems, and thus early interventions are critical to reduce the onset of later pathologies.

This paper is intended to provide an overview of ADHD and to help the reader understand the problems children with ADHD have with peer relationships. Interventions that may be used with these children to help them improve their peer relations are also provided.

PEER RELATIONS OF CHILDREN WITH
ATTENTION DEFICIT HYPERACTIVITY DISORDER

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Abstract

Attention Deficit Hyperactivity Disorder (ADHD) is a frequently occurring disorder which affects about one child in every elementary school classroom. This disorder has been receiving increased attention due to the later risks associated with ADHD, including: juvenile delinquency, academic achievement, psychopathology, IQ and cognitive development, physical health, and family relationships. Children with ADHD are particularly at risk for having difficulties with their peer relationships. Research has shown that over 50% of children with ADHD have poor peer relations. Typically children with ADHD are viewed as annoying, irritating, boisterous, and intrusive, all of which impede on their social acceptance. Research on whether children with ADHD have social skill deficits, performance deficits, or both have found that these children have either performance deficits only, or a combination of performance and social skill deficits. Research has also found mixed results on the impact of various interventions with children with ADHD. Psychopharmacological therapy has been found to have no positive effect on peer interactions. Behavior therapy has found that the combinations of reinforcement and modeling improved peer relations of children with ADHD; that short term skill training does not create a lasting change; and that the combination of reinforcement and social skills training did result in a decrease in uncooperative behavior. Behavior therapy and medication; cognitive-behavioral therapy; and cognitive-behavioral therapy and medication have all found favorable results, although not many combination treatments have been examined for their impact on peer relations of children with ADHD.

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Chapter 1: Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is an extensively studied behavioral disorder of children. This disorder is characterized by inattention, impulsivity, and hyperactivity. In this chapter, the significance of ADHD as a problem worth examining will be discussed, along with the purpose of this masters paper, and definitions of key terms.

The Significance of Attention Deficit Hyperactivity Disorder

Attention Deficit Hyperactivity Disorder occurs in about 3% of the elementary school student population, which is about one child in every classroom. This is a disorder that all school psychologists will come in contact with during their professional career. It is very important that school psychologists understand ADHD in general, the effects the disorder has on a child, and what interventions work in helping children with ADHD. With this understanding, school psychologists will be more able to treat these children adequately. The high numbers of children being diagnosed as ADHD signals the need for a better understanding of this disorder so that students are not inappropriately diagnosed as having ADHD. This better understanding of ADHD would also aid in finding better interventions to help the child with ADHD in the immediate academic environment as well as in the future.

This disorder has recently been receiving increased public attention due to the later

risks associated with this disorder. Students with ADHD are at risk for academic difficulties, antisocial behavior, problems in peer relations, and other difficulties. It was oftentimes believed that ADHD was only a problem of childhood. Research is now showing that ADHD symptoms can continue into adolescence and adulthood (Barkley, 1989). With this new information, children with ADHD must be carefully studied to find how strong the relationship is between children with ADHD and these later risks.

Peer Relations in Children with Attention Deficit Hyperactivity Disorder

This paper's main focus is on the peer relations of children with ADHD. Children with ADHD are particularly at risk for having difficulties with their peer relationships. Pelham and Bender (1982) state that over 50% of children with ADHD have poor peer relations. This area is in need of additional study, because when looking at interventions designed to help children with ADHD develop better peer relations, research findings have not yet been promising. Medication, which can reduce some problematic behaviors associated with ADHD, has not been found to be very beneficial in peer relations (Whalen, Henker, Collins, McAuliffe & Vaux, 1979; Whalen, Henker, Dotemoto, Vaux & McAuliffe, 1981; Pelham et al., 1982; Wallander, Schroeder, Michelli & Gualtieri, 1987; Granger, Whalen & Henker, 1993). In addition, few studies have been conducted in which combination treatments, such as cognitive-behavior modification and medication, have been examined for their impact on the interpersonal transactions of children with ADHD. The study of poor peer relations of children with ADHD may bring us closer to developing effective

interventions which will help these children function better not only in the schools, but throughout their lives at home and in the community.

The peer relations of children with ADHD have received more attention in the last few decades, but the research is still very limited compared to other ADHD related problems. Research is needed to add and improve what is already known about peer relations of children with ADHD.

Definition of Terms

The terms below are defined so that the reader knows their meanings as used in this paper. The three core behaviors associated with ADHD are described as: (1) **inattention** -when children have trouble sustaining their attention with activities and subsequently are easily distracted, (2) **impulsivity** -when a child acts before thinking and often interrupts others, and (3) **hyperactivity** -increased motor activity.

Children with ADHD have difficulties with both **selective attention**, which implies that the attention is shaped by their own social experiences, and with **sustained attention**, which implies being able to maintain attention (Coleman, 1996). With the focus of the paper being poor peer relations of children with ADHD, many of these children have been found to be **rejected** (not accepted) by their peers. A **peer** is a companion who belongs to the same age or grade group. Many studies, which will be discussed later, have looked at the impact of aggression on ADHD and peer relations. There are many definitions of aggression, which will be defined after the use of the term throughout the paper. Studies

on ADHD oftentimes involve **dyads** or pairs of children who work together and then are observed.

One area that is under constant debate is whether children with ADHD have social skill deficits, performance skill deficits, or both. **Social skill deficits** are present when a child does not possess the knowledge or behavioral skills necessary for successful interactions. **Performance skill deficits** are present when a child may possess the skillful behavior but may not carry out the behavior frequently enough or in the appropriate situation.

Many interventions are used with children who have ADHD. One of the most widely used intervention is medication. The drug that is most associated with ADHD is **methyphenidate** or Ritalin. As previously stated, children who have ADHD are at risk for later **psychopathology** (mental disorders), among other problems, and thus early interventions are critical to reduce the onset of later pathologies.

This paper is intended to provide an overview of ADHD and to help the reader understand the problems children with ADHD have with peer relationships. Interventions that may be used with these children to help them improve their peer relations are also provided.

Chapter 2: The Child with Attention Deficit Hyperactivity Disorder

In this chapter, the history of the ADHD label, symptoms of ADHD and current diagnostic criteria for ADHD, and the prevalence of ADHD will be discussed. Consequences of ADHD will also be explored, followed by approaches to the treatment of ADHD.

History of the Attention Deficit Hyperactivity Disorder Label

Our conceptions of Attention Deficit/Hyperactivity Disorder (ADHD) has undergone many revisions throughout history. Wheeler and Carlson (1994) discussed the history of ADHD beginning with the middle 1800s when there were several reports of children with problems of hyperactivity, impulsivity, and shortened attention spans. In 1902, a clinical psychologist, George Still, was the first to attempt to conceptualize this disorder through a series of published lectures in England. Still believed that these children had defects in their moral control, and believed that these defects were biological in origin rather than due to a lack of adequate parenting. Increased interest in ADHD began after World War II. Strauss and Lehtinen (1947) reasoned that if inattention, impulsivity and hyperactivity could originate from brain damage, then all children with these behaviors must be brain damaged. The term "minimal brain damage" was then applied to children who displayed these behaviors, often in the absence of medical documentation of actual brain damage.

As conclusions about brain damage, as a cause for hyperactivity, became less certain over time, the label for these behavioral symptoms was changed to "minimal brain dysfunction." Eventually, in the Diagnostic and Statistical Manual of Mental Disorders-II (DSM-II, 1968), the idea of neurological damage was dropped from the diagnostic terminology and the disorder was referred to as "Hyperactive child syndrome" or "Hyperkinetic Reaction of Childhood."

During the 1970s, evidence suggesting that hyperactive children also had deficits in attention and impulse control caused an influential shift in professional thinking. The American Psychiatric Association re-labeled the disorder as "Attention Deficit Disorder (ADD) (with or without Hyperactivity)" in the DSM-III (1980). Investigations supported the idea that ADD with Hyperactivity and ADD without Hyperactivity were dissimilar. Unlike children who were diagnosed with ADD with Hyperactivity, children who were diagnosed as having ADD without Hyperactivity did not have hyperactivity as a central feature of their disorder.

In the 1980s, the disorder was again re-labeled as "Attention Deficit-Hyperactivity Disorder" (ADHD) in the DSM-III-R (1987). This re-labeling suggested a reemergence of the role of hyperactivity as a main feature of the disorder (Barkley, 1989). The two disorders were labeled ADHD and Undifferentiated Attention-deficit Disorder (UADD). In DSM-IV (1994), there was a return to the DSM-III-type terminology reflecting current beliefs that ADHD and Attention Deficit Disorder (ADD) are in fact dissimilar.

Symptoms

Currently, ADHD is identified as a developmental disorder which can be characterized by inattention, impulsivity, and hyperactivity. These behaviors occur across settings. There are several core behaviors that have been identified as symptomatic of ADHD in the DSM-IV (1994). To make a diagnosis of ADHD, a child needs to exhibit at least six of these behaviors listed below, to an excessive or extreme degree, for a period of at least six months. Many children have symptoms of ADHD and so appear to be ADHD but these behaviors must last in duration, be frequent and be severe in order for a diagnosis of ADHD to be made. It is essential to keep this in mind when applying the diagnostic criteria, so that a child is not diagnosed as having ADHD when in fact he/she does not. It is also important to remember that different socio-cultural contexts may affect how people view these symptoms. Different cultures have different tolerance levels for the ADHD symptoms. For example, some Native-American cultures emphasize learning in cooperative groups. A child from these cultures who is impulsive (difficulty waiting his/her turn, interrupts peers, etc.) and/or has other ADHD symptoms may be identified as ADHD while a child exhibiting the same symptoms who is from a fast-paced individualized world may not be identified as ADHD.

The behaviors from DSM-IV (1994) include:

Inattention:

1. *fails to give close attention to details/makes careless mistakes*
2. *has difficulty sustaining attention to tasks or play*

3. *does not seem to listen when spoken to directly*
4. *has difficulty following instructions (e.g., fails to finish schoolwork, chores)*
5. *has difficulty organizing tasks and activities*
6. *avoids tasks requiring sustained mental effort (e.g., homework)*
7. *often loses things needed for home or school (e.g., toys, assignments)*
8. *is easily distracted*
9. *is forgetful*

Hyperactivity:

1. *often fidgets or squirms*
2. *has difficulty remaining seated*
3. *runs or climbs excessively*
4. *has difficulty playing or engaging in leisure activities quietly*
5. *often talks excessively*
6. *is often "on the go"*

Impulsivity:

1. *often blurts out answers to questions*
2. *has difficulty awaiting turn*
3. *often interrupts or intrudes on others*

(DSM IV, 1994: 83-85)

Coleman (1996) discussed how a person's tolerance range has a great influence in judging whether or not a child has ADHD. Everyone has preferences for certain types of behavior and dislikes other types of behavior. Teachers have different tolerance ranges for what is acceptable in their classroom and these tolerance ranges can vary quite widely between teachers. These differences in tolerance ranges may cause teachers with lower tolerance for hyperactivity, inattention, and impulsivity actions to more readily refer a child to be assessed for ADHD, whereas teachers having a higher tolerance for such

behaviors may not even think of ADHD as a possibility.

Children with ADHD have problems with both selective attention (attention shaped by our social experiences), and with sustained (maintained) attention (Coleman, 1996). Selective attention difficulties interfere with a child's functioning because the child either is focusing on an inappropriate stimuli and/or is easily distracted when the child is actually paying attention to the correct stimuli. Sustained attention is also important, especially in the classroom. When children with ADHD are unable to sustain their attention, they may only complete half a worksheet, apparently forgetting the rest, or skip problems on a sheet of math exercises.

Children with ADHD also have increased motor activity which is noticeable in the classroom (Coleman, 1996). Children with ADHD are found to be more restless, fidgety, and active than typical children. Analogies have often been used to describe these children; for example, "a motor that is always running," or "an engine that only has one gear-high."

Impulsivity is also a symptom of children with ADHD. These children often act without thinking (Coleman, 1996). They may blurt out answers before their turn, may interrupt others, and have difficulty with turn taking. These behaviors may have an aversive effect on interpersonal relationships.

Children with ADHD are more aggressive, disruptive, domineering, noisy, intrusive, and socially rejected than typical children serving as controls. Landau and Moore (1991)

reported that children with ADHD have been described as boisterous, annoying, intrusive, irritating, and intractable, all of which impede on their social acceptance.

According to Coleman (1996), children with ADHD have demonstrated problems with compliance to parental and teacher commands, display decaying relationships with family members, teachers and peers, and show reductions in academic performance and self-concept. The findings of Lahey and Carlson, (1991) revealed that children with ADHD have been suspended from school more frequently than non-ADHD children and are more likely to be placed in classrooms designed to serve children with behavior disorders. Wender (1995) believed that when a child had school problems, such as poor academic achievement, and also displays immaturity, disruptive behavior, or poor peer relationships, ADHD should be considered as a possibility for being a causal agent.

Prevalence

According to Wheeler et al., (1994), ADHD is a disorder of childhood which affects approximately 3% of elementary students which translates to about one child with ADHD in every classroom. Estimates vary between 1% and 20% depending on the strictness of the criteria used when defining the disorder and the degree of agreement needed among parents, teachers and professionals. Barkley (1989) also acknowledges that the numbers of children with ADHD fluctuate to some degree across cultures.

Approximately 50% of children with ADHD begin to display some ADHD symptoms before the age of four; however, many children are not diagnosed until age six or seven

when they are confronted by classroom rules, demands and parental expectations upon entry in elementary school. The proportion of males versus females who have ADHD varies across studies from 2:1 to 10:1 (Frederick & Olmi, 1994; Sabatino & Vance, 1994). The average most cited for clinical samples is 6:1. Davison and Neale (1994) feel that this wide difference may be a reflection of whether the source of the samples used to establish prevalence was taken from clinic referrals, where boys were more likely to be referred due to their of aggressive behaviors in addition to ADHD, or if it was taken from the general population.

Pelham et al., (1982) have reported that over 50% of ADHD children have problems when interacting with peers. This rejection by age-mates can even occur after a brief encounter between an ADHD child and an unfamiliar child. It is for these reasons that ADHD children are often chosen for studies in problematic peer interactions.

Consequences of Attention Deficit Hyperactivity Disorder

Juvenile Delinquency

Studies discussed below indicate that ADHD is a predictor of later juvenile and adult crime. This is a serious social problem in the United States and the concern over the problem of delinquency helps push the interest in prediction studies in this area. Barkley (1989) stated that oftentimes children with ADHD do not "outgrow" their symptoms, and that perhaps over 75% (Weiss & Hechtman, 1986), continue to have problems in society when older.

There have been several longitudinal studies that have followed children who were diagnosed with ADHD into their adolescent and adult years. Studies (Huessy, Metoyer & Townsend, 1974; Weiss, Hetchman, Perlman, Hopkins & Wener, 1979) have found that around 25% of diagnosed children with ADHD exhibit delinquent behavior when assessed in adolescence. Laufer (1971) reported that 30% of the hyperactive children in his study had been in trouble with the police, however, none had been in jail. Fergusson and Horwood (1995) also reported that 24.8% of their sample of reassessed adolescents with ADHD were classified as recurrent offenders.

A major study in this area was performed by Satterfield, Hoppe and Schell (1982) who reported that the percentage of subjects with ADHD arrested at least once for a serious crime (robbery, burglary, car theft, and assault with a deadly weapon) in the lower, middle, and upper socioeconomic classes was 58%, 36%, and 52% respectively. In comparison, the percentage of controls arrested at least once in the lower, middle, and upper socioeconomic classes was 11%, 9%, and 2% respectively. Satterfield et al. also found the percentage of subjects with ADHD, who had a record of multiple arrests, in the lower, middle, and upper socioeconomic classes. These were 45%, 25%, and 28% respectively. The controls, in comparison, who had been arrested multiple times were 6%, 0% and 0% respectively. These findings, Satterfield et al. concluded, suggest a strong relationship between childhood ADHD and later juvenile delinquency.

Mannuzza, Klein, Konig, and Giampino (1989) reported that significantly more adolescent and young adult males who were diagnosed with ADHD as children had been arrested (39%), convicted (28%), and incarcerated (9%) than controls. However, it was found that ADHD by itself was not associated with arrest history. Instead, it was found that ADHD is a risk factor for later criminality, but only when it is mediated by the development of an antisocial disorder in the adolescent years. Antisocial personality disorder can be defined as people who are superficially charming and habitual liars; have no regard for others; show no remorse when hurting others; have no shame for their behavior; are unable to form relationships and take responsibility; and do not learn from punishment (Davison et al., 1994). It is noted in Mannuzza et al. that in the study about two-thirds of the 101 hyperactive subjects, who had also developed an antisocial disorder, eventually became known to the criminal justice system.

Weiss, Hechtman, Milroy and Perlman (1985) found in their follow-up study of children who were diagnosed with ADHD that 23% of the ADHD subjects (approximately 1/4) had developed antisocial personality disorder. They also reported that 3.7% of the subjects lost to the follow-up had known criminal records. Mannuzza, Klein, Bonagura, Malloy, Giampino, and Addalli (1991) also found that 32% of their subjects with ADHD had developed antisocial personality disorder in comparison to only 8% of the control group.

Similar results were reported by Mannuzza, Klein, Bessler, Malloy, and LaPadula (1993) who found that hyperactive children were nearly 10 times more likely to have an antisocial personality disorder in adulthood than controls. In their study they concluded that five of their hyperactive subjects were incarcerated for aggressive acts (manslaughter, robbery, and robbery and assault), and one had died from a stab wound at the age of 22 years.

Wallander (1988) also performed a study which followed children with ADHD into their adolescent years. Wallander found that 26% of the subjects with ADHD had between one and nine arrests, 18% had been arrested for at least one traffic offense, 2% for minimal offenses, 12% for theft, 2% for wanton destruction of property, and 2% for a violent crime. There were no arrests for putting other people's lives in danger, drug offenses, or sexual crimes. Wallander concluded, however, that attention deficit problems in childhood only weakly predict later antisocial behavior.

Weiss et al., (1986) also found a weak link between poor peer relations and later juvenile or adult crime. They reported that they found no significant difference in antisocial behavior in late adolescence or adulthood with children who were diagnosed with ADHD as children as compared with those who were not. What was found was only a trend toward greater antisocial involvement in the ADHD group.

Academic Achievement

Weiner (1980) reported that it had been estimated that approximately one in five children in the United States drops out of school when in high school and about one third of these children leave school before eighth grade. After interviewing their subjects, Weiss et al., (1979) concluded that hyperactive subjects completed fewer years of school than did controls. Average marks for hyperactive children were significantly lower than for controls, and it was found that more of the hyperactive students left school for this reason. It was also noted that significantly more hyperactive subjects had been expelled from school. Lambert (1988) found similar results in her study in which only 66% of her 166 subjects treated as hyperactive during childhood graduated from high school or obtained a general equivalency diploma. Mannuzza et al., (1993) also concluded from their prospective study that, on the average, children with ADHD completed 2.5 years less schooling than did the controls. Nearly one quarter of the subjects with ADHD had dropped out of school by the 11th grade. This compared to only 2% of the controls. Fischer, Barkley, Edelbrock, and Smallish (1990) also concluded that children with ADHD generally had more impaired academic adjustment and conduct at school, as shown by more grade retentions, suspensions, expulsions, and higher dropping-out rates. Finally, Barkley, Fischer, Edelbrock and Smallish (1990) found that hyperactive students were three times more likely to fail a grade or be suspended and more than eight times as likely to be expelled or drop-out of school than controls. Zentall (1993) believed that

impulsivity was a main factor contributing to the poor educational performance of many hyperactive students. She believed that impulsivity produced academic errors, because the child did not wait long enough to consider other alternatives, which oftentimes resulted in poor multiple-choice performance, poor planning skills, and a failure to read directions.

Psychopathology

Psychopathology (the study of psychological and behavioral problems occurring in mentally ill persons) has been studied less adequately than have academic achievement and juvenile delinquency. Ross and Ross (1982) found that, as they grow older, most children with ADHD show difficulties with aggression, defiance, or oppositional behavior. Barkley (1989) reported that children with ADHD who develop these conduct problems were more likely to have problems with maladjustment in later years than those children with ADHD who did not have aggressive behaviors, or only did so to a small degree.

Barkley (1989) also reported that when children with ADHD were in their teens, only a small percentage showed symptoms of ADHD, but perhaps as many as 75% of these children (Weiss et al., 1986) continued to have problems at school, home, or in the community. Even children with ADHD who grew up to be free of psychiatric problems, experienced social problems. Weiss et al., (1985) claimed that as young adults, at least 60% of these subjects with ADHD continued to exhibit symptoms such as impulsivity, hyperactivity, and inattention. Peer relations also continued to be a problem for these adults, and depression (up to 75% of the sample) and low self-esteem

were prevalent.

Mannuzza et al., (1991) found from their follow-up study that when the subjects, who were previously diagnosed with ADHD as children, became adolescents, the most common diagnoses of a maladaptive nature were antisocial personality disorder, conduct disorder, and drug abuse disorder. These three diagnoses were significantly more prevalent in the hyperactive subjects than in controls. Mannuzza et al., (1993) reported similar findings. They concluded that 33% of their subjects with ADHD versus 16% of the controls were diagnosed with mental disorders, the most common being antisocial personality disorder. Children with ADHD were 10 times more likely to have antisocial personality disorder during adolescence than controls. The next most frequently occurring disorder was drug abuse, with marijuana and cocaine as the most frequently abused drugs. At follow-up, children who were diagnosed with ADHD were five times more likely to have abused drugs.

Similar results were found in a prospective study by Gittelman, Mannuzza, Shenker and Bonagura (1985). They concluded in their follow-up of children diagnosed as having ADHD that the most common disorders during the adolescent years were ADHD, conduct disorder (they combined conduct disorder and antisocial disorder) and substance abuse disorder.

IQ and Cognitive Development

When looking at the IQs of ADHD children, Fischer et al., (1990) found in their study that their hyperactive subjects had significantly lower IQs on the Peabody Picture Vocabulary Test Revised (PPVT-R) than the controls. This difference was also apparent at the beginning of the study despite efforts to match the hyperactive subjects and controls for similar socioeconomic (SES) backgrounds. From past research (Tarver-Behring, Barkley, & Karlsson, 1985), Fischer et al. concluded that hyperactive children scored lower on this test than did controls indicating that even when groups were matched in SES, hyperactive children usually did more poorly on intellectual assessments than did controls.

Lambert, Hartsough, Sassone and Sandoval (1987) also found from scores on the Wechsler Intelligence Scale for Children (WISC-R) that the average verbal IQs of their hyperactive subjects and controls were 97 and 106 respectively, and the average performance IQs were 102 and 110. They also reported that the hyperactive subjects scored lower on every subtest with the exception of Picture Completion and Object Assembly. Barkley (1990) identified a number of factors that might account for the findings that children with ADHD do more poorly than controls on intellectual assessments. These factors included differences in test-taking behavior (lack of motivation, inattention), coexisting learning disabilities, and actual differences in intelligence.

When Lambert et al., (1987) looked at cognitive development in their prospective study, they used spatial perspective tasks and tasks assessing formal reasoning to examine the quality of the subject's cognitive reasoning. Their findings indicated that hyperactive children earned lower scores than controls on both spatial perspective and formal reasoning tasks. Weiss et al., (1985) noted that hyperactive subjects used impulsive rather than reflective approaches to cognitive tasks, which may account for the lower scores.

McGee, Partridge, Williams & Silva (1991) conducted a twelve-year follow-up study and found that their hyperactive subjects showed poorer speech articulation, lower IQ and poorer reading ability. McGee et al. suggested that their findings indicated a strong association between inattentive behaviors and cognitive impairment.

Physical Health

There have been mixed results in the findings related to hyperactivity, a risk factor for injury. Stewart (1970) found in his study that 43% of the hyperactive children were described by their mothers as accident prone. This compared to only 11% of the control group. Poisoning is also a concern with ADHD children. It was found by Stewart, Thach and Freidin (1970) that 21% of 99 hyperactive children had histories of accidental poisoning compared to 8% of the 196 children in the control group. Weiss et al., (1979) did a 10 to 12 year longitudinal study of 75 hyperactive boys and 44 controls. They concluded that the mean number of car accidents was significantly higher for the hyperactive boys than for the boys in the control group.

Children with ADHD are overactive, inattentive, impulsive and easily excitable. They also display, often times, a low tolerance for frustration and aggression. Bijur, Stewart-Brown and Butler, (1986); Davidson, (1987); Jaquess and Finney (1994); and Matheny, (1988) all concluded that these behaviors have been consistent correlates of child injury. Farmer and Peterson (1995) found that cognitive factors in ADHD children, such as low expectations of personal risk in hazardous situations and less ability to develop prevention strategies and safety rules, may also contribute to the increased risk of injury in ADHD children.

There have also been studies that found that children with ADHD were not at risk for injury. Bijur, Golding, Haslum and Kurson (1988) reported from their prospective study that when hyperactivity was combined with aggressiveness, these children were more susceptible to injury. Once aggression was controlled for, hyperactivity no longer was a significant risk factor for injury.

Davidson, Taylor, Sandberg and Thorley (1992) found in their 16-month follow-up that 214 of the 1740 boys and girls in the study (both hyperactive and control) had only minor injuries such as fractures, and mild head injuries. There was no significant difference between the hyperactive boys and the control group. It was concluded that there was no risk of injury seen in hyperactive boys.

Family Relationships

Findings from Barkley et al., (1990) indicated that the family status of children with ADHD had changed considerably over an eight year follow-up. More than three times as many mothers of children with ADHD had been separated or divorced from these children's biological fathers than in the control group. The children with ADHD also experienced four times as many moves as did children in the control group. Fathers of children with ADHD had changed jobs more than twice as often as fathers of children without ADHD. Barkley et al. concluded that stability of marriage, job, and residence is less typical of families of children with ADHD than of the control group families.

Barkley, Anastopoulos, Guevremont, & Fletcher (1992) did a study on children with ADHD and family relations and found that mothers of children with ADHD rated their communication with their adolescents as being more negative than did mothers of control group children. The children with ADHD were also rated by their mothers as experiencing more conflicts and more anger during conflicts than were controls. During direct observation, it was noted that the children with ADHD used more put downs, commands, defensiveness and complaining, and less positive talking with their mothers than did the controls. These findings suggest that the presence of ADHD in a family is associated with more anger and conflicted family communication than in families without a child with ADHD. This, however, is a causal statement and it can only be speculated that inattention, impulsivity, and hyperactivity increases disagreements between teens with

ADHD and their families.

Barkley et al., (1990) also found that fathers of hyperactives had a greater incidence of antisocial behavior. Between 20% and 40% of fathers of hyperactive subjects engaged in antisocial acts of various kinds (fights, stealing, unexplained absences from work).

Wallander (1988) found that 30% of the fathers of the 144 hyperactive subjects in her study had at least one arrest. It was also found by Wallander that 23% of these fathers had problems controlling their alcohol intake. Wallander concluded that the relationship between childhood ADHD and later antisocial behavior is moderated by the child's IQ and his/her father's problems controlling alcohol consumption. In connection with this finding, it was concluded by Lambert (1988) that family process factors (quality of home environment and parent-child interactions) are critical when investigating explanations of childhood risk for later adolescent outcomes.

Approaches to Treatment

There are many interventions that are used to help children with ADHD control their impulsivity, hyperactivity, and inattention. Interventions that have some established efficacy are psychopharmacological therapy (medications), behavior therapy, cognitive-behavioral training, and a combination of these treatments.

Stimulant Medications

Stimulant medications, such as methylphenidate (Ritalin), pemoline (Cylert), and dextroamphetamine (Dexedrine), are the most frequently used approaches to the

alleviation of hyperactive children's attention difficulties (Cunningham, Siegel, & Offord, 1985). According to Barkley (1989), it has been estimated that 60% to 90% of children with ADHD are prescribed stimulants during their school age years, and that between 70-80% of children with ADHD respond positively to stimulants. Stimulant medication is a popular intervention because of quick results in reducing disruptive behavior, while increasing attention and impulse control. Barkley (1989) emphasized that it is now hypothesized that stimulants impact behavior by lowering the amount of reinforcement needed to achieve and maintain a desired behavior. The child, therefore, becomes more responsive to reinforcement.

Wallander et al., (1987) found in their study that the children with ADHD who were given Ritalin showed less oppositional, off-task, and more on-task behavior compared to children given placebos. Cunningham et al., (1985) found that Ritalin reduced the number of controlling and dominating interactions between peers.

Ervin, Bankert and DuPaul (1996) discussed how stimulant medication has limitations in its use as an intervention to help children with ADHD, since stimulants can cause side effects such as insomnia, appetite reduction, and mood swings. They also reported that medication does not "cure" ADHD in the sense of normalizing the child's behavior. Coleman (1996) also stated that medication can become a crutch for children with ADHD. These children may come to believe that they cannot control themselves

without the drug. Stimulant medication, as discussed in Chapter 3, does not have favorable effects on peer relationships in children with ADHD.

Behavioral Interventions

Behavioral interventions have also been used with children who have ADHD. Most improvements from behavioral interventions, however, are short-term. Reasons for this are several: teacher disinterest in continuing the program, inadequacies in the program, and/or loss of reinforcer effectiveness (Coleman, 1996). Behavioral interventions include using positive and negative reinforcement, punishment, and modeling. Reinforcement strengthens a behavior. Positive reinforcement is when the desired behavior is reinforced by something the child likes or enjoys (i.e. candy, praise, extra free-time). Negative reinforcement is when a behavior is reinforced by the disappearance of an undesirable stimulus (i.e. when a child does his/her homework, a check is erased from the chalkboard and the child can then go out for recess).

Punishment involves decreasing a behavior. Barkley (1989) emphasized that behavioral interventions are concerned with changing specific behaviors of children with ADHD, such as increasing positive behaviors or reducing aggression and disruption, and not with changing the general aspects of the child's peer status.

Social skill training is also part of behavioral interventions. Guevremont (1990) stated that only a few social skill interventions with hyperactive children have been evaluated.

Guevremont and Dumas (1994) argued that children with ADHD who receive this training

generally learn about appropriate and inappropriate social behavior, and learn some skill in handling their feelings in order to behave more appropriately.

There are four objectives in social skill training. These objectives are to (1) increase a child's awareness of acceptable social behavior, (2) teach prosocial behaviors not present in the child's social repertoire, (3) enhance the use of these prosocial behaviors in the natural environment, and (4) change how the child is accepted by and reacts with others in the social community (Guevremont, 1990).

It is important that these social skills are generalizable to the natural environment. To promote generalization, one may incorporate a variety of strategies: a) increase the intensity of a program; b) use real-life scenarios and training vignettes; c) use diverse training experiences; d) develop self-monitoring homework exercises; e) have students concentrate on relevant skills; and f) have booster sessions. Environmental and peer support are also needed during these training sessions if the skills are to be generalizable.

Behavioral Interventions and Medication

The combination of behavioral interventions with medications is a popular form of treatment. This combination has been found to result in both successes and failures in intervention. These mixed results may be due to the way the research was carried out rather than to the treatments. Despite some failures to find success in the combination of behavioral and medication treatments, their combination may be useful in that stimulants

are not usually used in the late afternoon and evening, when parents may need behavior management techniques to deal with the symptoms (Barkley, 1989).

Cognitive- Behavioral Interventions

Cognitive-behavioral interventions have also been used with hyperactive children to help achieve a behavioral change and have shown some promise in the treatment of ADHD symptoms (Ervin et al., 1996). These interventions focus on teaching children cognitive strategies for solving academic problems and enhancing interpersonal exchanges. The interventions usually teach children to regulate their own behavior. Examples of cognitive-behavioral interventions include self-instruction training, social problem-solving training, self-monitoring, self-evaluation and self-reinforcement. Abikoff (1985) noted that self-talk and self-monitoring helped children with ADHD in specific learning situations, and in general classroom behaviors.

Cognitive-Behavioral Interventions and Medication

Combinations of cognitive-behavioral interventions with medication have also been used, and have had mixed results. Some studies (Horn, Chatoor, & Conners, 1983; Hinshaw, Henker, & Whalen, 1984a) have found success with combined treatments, while other studies (Brown, Borden, Wynne, Schleser, & Clingerman, 1986; Cohen, Sullivan, Minde, Novak, & Helwig, 1981; Hinshaw, Henker, & Whalen, 1984b) have failed to show positive findings. For example, Horn et al., (1983) found that the combination of these two treatments was effective in increasing on-task behavior in class and decreasing teacher

ratings of ADHD symptoms. Conversely, Brown et al. (1986) found no benefits of combined drug and cognitive-behavioral interventions with children with ADHD.

Chapter 3: Social Skills of Children with Attention Deficit Hyperactivity Disorder

In this chapter a brief overview of the social skills of "normal children" will be discussed. This will be followed by a discussion of the social skills of children with ADHD, and interventions that are aimed at helping children with ADHD who have poor peer relationships.

Social Skills of Non-Attention Deficit Hyperactivity Disordered Children

Social interaction with peers is thought to be essential to optimal development (Quay & Jarrett, 1989). Peer interaction facilitates cognitive development. This is because children gain knowledge about the world through social exchanges with their peers. Early peer relations are also important for social and emotional development and for later life adjustment.

Peer interaction occurs through a reciprocity involving one's elicitation and another's social response (Quay et al., 1989). The child's initiation affects the other's response, but the kind of response also affects whether a social interchange will take place and whether the initiator will make future attempts for social exchange with that person. Positive initiations lead to friendly responses, and hostile initiations lead to unfriendly responses. Well-liked children know how to interact positively.

The social skills of normal children can be measured through a variety of ways, as described in the section, "How to measure peer relationships," below. Rubin (1990) acknowledged that past research had led many psychologists to conclude that if children did not have adequate peer relationship experiences, they may be at risk for later maladjustment. These areas of maladjustment include psychopathology, school dropout, and delinquency in adolescence and adulthood. Positive peer relations are important for all children so they can develop perspective-taking skills through peer interaction. A child's peer and friendship relations are the foundation of mutual respect, cooperation, and interpersonal sensitivity. It is critical that children have these positive peer relations for healthy development to occur.

Social Skills of Children With Attention Deficit Hyperactivity Disorder

A Cause for Concern

Peer relations and later personal adjustment among children with ADHD are a concern expressed by authors, researchers, parents and teachers. Whalen and Henker (1985) have described several reasons why the peer problems of ADHD children can be cause for concern.

One reason for concern was that these children's troubles were central and pervasive, in that interpersonal difficulties were usually the most problematic behaviors noted by parents (Whalen et al., 1985). Another reason for concern was that these "poor" peer

relationships tended to be long lasting, recurrent and often escalated throughout the years. Children with negative reputations tended to maintain these reputations over time, and the negative reputations were likely to increase with age. Negative peer relationships were also important because they were associated with serious problems such as school dropout, juvenile delinquency, job termination, less than honorable discharge from the military, police contacts, schizophrenia, neuroses and other psychiatric impairments in adolescence and adulthood. Finally, research has shown that ADHD children may evoke poor behaviors from those around them. Mash and Johnston (1983) found that sibling pairs, in which only one child was hyperactive, had four times as much negative (angry, noncompliant) behavior as did pairs with two non-ADHD children. Whalen, Henker, and Dotemoto (1981) found similar results in their study. They found that teachers tended to be more controlling in their interactions with children with ADHD than with normal children suggesting that the presence of a hyperactive child changes the social relationships in a classroom, and that this change is caused in part by teachers' responsiveness to children with ADHD. Because children with ADHD often have poor peer relations, these problems are of great concern.

Whalen et al., (1985) described how children with ADHD sometimes gravitate toward other children with ADHD, are more likely than their peers to choose friends who are noncompliant, and are more likely to engage in deviant behaviors. If this continues

over time, the social environment of children with ADHD may encourage the development of a socially dissonant lifestyle, a lifestyle where there is a lack of agreement between society's rules and norms, and one's actions.

Peer ratings of classmates are more predictive of later adjustment than teacher or parent reports of school achievement (Whalen et al., 1985). Teachers may be biased by their knowledge of how the child is doing in school. Teachers and peers also hold different expectations of what are appropriate and inappropriate behaviors. Teachers are also not always present to witness the incidents of peer interactions and therefore may not be able to judge accurately the child's level of acceptance among peers. Despite these limitations, teacher ratings should still be considered when predicting later adjustment because teachers are a large and important part of a child's everyday life.

How to Measure Peer Relationships

Peer relationships can be measured through numerous ways. Multiple measurements are often used when measuring peer relationships among children with ADHD.

Barkley (1989) stated that one way of measuring peer relationships was through interviews. An interview used in the Grenell, Glass & Katz (1987) study was the Social Knowledge Interview (SKI) (Geraci & Asher, 1980). This interview consisted of 16 hypothetical social situations in which the subjects imagined what they should do in each situation. Each item in the interview assessed either the initiation of a relationship, relationship maintenance, or conflict resolution. This interview was used in Grennell et

al., (1987) with children with ADHD by individually administering the interview and videotaping the responses. It was found that children with ADHD had responses that were less friendly, more assertive (domineering), less effective (meaningful), less relationship-enhancing, and showed little impulse control compared to the control children.

The Social Adjustment Inventory for Children and Adolescents (SAICA) (John, Gammon, Prusoff & Warner, 1987) was an interview used by Biederman, Faraone and Chen (1993) that assessed adaptive functioning in children. The SAICA covered four main areas: school, spare-time activities, peer relations, and home life. The interview gathered information on current or past functioning and summarized social functioning for several grade levels. John et al., (1987) used this interview when assessing the social adjustment (how children get along with their peers) of children with ADHD. They found that 38% of the children with ADHD reported problems with peers compared with 2% of controls.

Observations of how children with ADHD interact with their peers are also used to measure peer relationships. Gay (1996) stated that when observations are part of assessing peer relationships, observers must be trained and must have high interobserver agreement (the degree to which two observers who are viewing the same behavior at the same time agree with one another). To improve observer agreement, the behavior to be observed must be clearly defined in operational terms (describing the behavior observed);

the type of observation must be clearly and specifically described; practice should occur before the actual observation; and one can use stopwatches, or videotapes to improve accuracy. Behaviors noted to occur more often with children with ADHD than non-ADHD children are being off task, being out of seat, fidgeting, talking, and lack of attention. These behaviors and how they cause poor peer relationships will be discussed in upcoming subsections of this paper.

Reliability when observing is increased when the observer operationally defines the target behavior, and when there is 100% interrater agreement. Validity is increased when the observation is conducted in a variety of environments. Assessing peer relationships in a variety of environments is important because children act and participate with peers differently in different environments, and by observing children with ADHD in different environments, the observer gets an overall picture of how the child relates with his/her peers in many environments, not just in a classroom. Observation bias also needs to be controlled for by making the observers aware of bias through training and practice sessions.

Direct observation studies of peer relationships started to grow in the late 1970s and early 1980s. Schleifer, Weiss, Cohen, Elman, Cvejic and Kruger (1975) observed peer interactions in hyperactive children. They found that children with ADHD were more aggressive (belligerent) toward their peers. Campbell, Endman and Bernfeld (1977)

found through observation that children with ADHD in the classroom were more disruptive (defiant) and received more negative feedback from their teachers.

Observations are now sometimes being accomplished through videotape. As stated previously, videotapes tend to enhance the reliability of interrater agreement. Cunningham and Siegel (1987) used videotapes to study the peer interactions of normal and boys with ADHD in free-play, cooperative tasks, and in simulated classroom situations. It was found that the mixed dyads (one boy with ADHD paired with one non-ADHD boy) had a more controlling interaction (were less compliant toward each other) than normal dyads (two non-ADHD boys) in the free-play and simulated classroom settings. Clark, Cheyne, Cunningham and Siegel (1988) also observed dyadic peer relations with boys with ADHD and non-ADHD boys. They found that the mixed dyads (one boy with ADHD and one non-ADHD boy) had a higher frequency of aggression (hostility) and less joint activity (working together) than the control (two non-ADHD boys) dyads. Interobserver reliability was assessed and found to be between .76 and .98.

Alessandri (1992) also used videotapes in his study. Four observers coded the play and non-play behaviors of the children with ADHD. Agreement for social participation categories was 88% (playing alone; playing next to another child; and playing with another child), for cognitive play, 92% (repetitive play; creating something; role taking or pretend play; and playing games with rules and abiding by the rules) and for the nonplay categories, 94% (not playing; moving from one activity to another; watching other

children but not entering into play; verbal exchanges with adults; verbal exchanges with peers; and kicking, throwing objects, and pushing forcefully). It was concluded from the study that the children with ADHD engaged in less overall play and greater non-play behavior.

Finally, a popular form of measurement of peer relationships is sociometrics. A sociometric scale can be easily administered to a class. The scale focuses on a child's social status. The scale answers whether or not a child is liked by his peer group. Sociometrics have children nominate their classmates for the different categories (i.e. bossy, good listener, nice, mean, hurts others, most popular, most disliked, etc.) and can also nominate themselves for categories. The nominations fall under two categories -"Liked Most" and "Liked Least." When the entire class has each filled out the sociometric scale, the researcher can then compile the results into meaningful data and look at how the class nominated their peers. The researcher can then tell which children are popular, rejected, neglected, and so on. For example, neglected children do not get mentioned very much or not at all on a sociometric scale.

Since the major concern in social relationships lies in the classroom, it is suggested by Parker & Asher (1987) that peer-based assessments are preferable to adult-based assessments. Sociometric ratings of children with ADHD by peers have been found to be better indicators of social adjustment (how children get along with and interact with their peers) than adult ratings. Frederick et al., (1994) stated that children with ADHD receive

low or negative scores on sociometric measures because peers view the children with ADHD as being aggressive (provocative), bossy (telling their peers what to do), and troublesome (being disruptive).

The Pupil Evaluation Inventory (PEI) (Pekarik, Prinz, Liebert, Weintraub, & Neale, 1976) is a peer nomination inventory used to gather sociometric data and appears to be a reliable and valid instrument. This inventory was used by Pelham et al., (1982). In their study, they administered the PEI to their subjects. Each child had a booklet with a matrix in which each child's name in the class was crossed with each item on the inventory. Each child was allowed to nominate as many or as few children by putting an "X" in the appropriate box. Results, using this instrument, showed that children with ADHD received significantly more "liked least" ratings, and received significantly fewer "liked most" nominations than normal classmates.

Teachers also can be involved in measuring peer relationships (Barkley, 1989). Behavior rating scales or checklists are oftentimes used to assess how teachers view the children in their classroom. These scales or checklists are convenient, can be given to parents, teachers, and children, and can gather information across long time intervals. Behavior rating scales or checklists allow the comparison of children with ADHD against the norms of same-age children to help determine the degree of deviance of the ADHD symptoms.

Behavior checklists have been considered valid indicators of peer relationships if they directly correlate with DSM IV criteria. There is, however, little known about the internal reliability and validity of most teacher behavioral measures. Parker et al., (1987) found that there is adequate interrater agreement and test-retest reliability in these measures. However, Meents (1989) argued that behavior rating scales are subjective and fallible.

Parents also can help measure peer relationships by filling out questionnaires such as the Behavior Problem Checklist, and the Conners Parent Questionnaire. Conners (1970) found that parents tend to report that children with ADHD have more difficulty in maintaining friendships, and getting along with their peers. Campbell (1973) stated that parents also report that children with ADHD are less popular with peers and continue to have trouble in adolescent years.

General Remarks on The Social Skills of Children With Attention Deficit Hyperactivity Disorder

To date, there has only been limited research on interpersonal relationships and the social status of children with ADHD. Studies (DeHaas & Young, 1986; Flicek & Landau, 1985), however, have consistently indicated that children with ADHD are more prone to be rejected by peers in their class. Communication skills are thought to be partly responsible for peers' negative responses to children with ADHD (Frederick, et al., 1994). These children communicate less efficiently, request less feedback and disagree more often

than other children. Children with ADHD may also experience frustration, and be aggressive because of their deficiency in verbal communication skills.

Frederick et al., (1994) also reported that, in addition to problems with communication, aggression was another trait that correlated with peer rejection. Children with both ADHD and aggression (forceful actions used to dominate) have been found to be more rejected by peers than children who are not ADHD but are aggressive.

According to Frederick et al., (1994), children with ADHD were recipients of more intense negative attention from their teachers because of their oftentimes off-task behaviors, than were their classmates. Consequently, peers perceived the child with ADHD as the cause of negative attention to the child with ADHD from the teacher, which thus led to peer rejection. Frederick et al. believed that future research was needed on the social skills of children with ADHD, and that researchers also needed to identify which of the significant correlates (off-task, communication, and aggression) were causally related to social status and which were only exhibiting indirect causation.

When hyperactive children were compared to their classmates, they tended to be engaged in more undesirable social behaviors (Frederick et al., 1994). These hyperactive children were found to be irritating (bugging people) and objectionable (offensive), noncompliant and disruptive (unruly). Hyperactive children were not slow to respond. It has been noted by Whalen et al., (1985) that hyperactive children may engage in higher-than-normal rates of social exchanges, and these children who have higher social

activity levels may in fact be at risk for negative interpersonal experiences due to the characteristics listed above.

In an important study on peer relationships of children with ADHD by Pelham et al., (1982), hyperactive children were nominated by their peers as most frequently getting angry when they did not get their way, trying to get others in trouble, being mean toward other children, starting fights, telling other children what to do, bothering others who are trying to work, and getting into trouble, thus obtaining more negative scores than the comparison group on sociometric ratings.

Aggression (getting mad when not getting one's way; telling others what to do) was also higher for hyperactive boys than for nonhyperactive boys. These results suggested that hyperactive children may have obstacles to overcome which go beyond the child's difficulty in tolerating the structure of a school settings and beyond parent and teacher intolerance. These obstacles arise from the peers of ADHD children as the peer ratings in Pelham et al., (1982) showed that peers described the same impulsive, immature, annoying, and aggressive behaviors that adults ascribed to children with ADHD.

Milich and Landau (1982) stated that parents often report that their hyperactive children have no friends or that they only get along with children several years younger than they, and that peers of hyperactive children oftentimes evaluate children with ADHD quite negatively, either through behavior scales or through negative roles in a class play. Whalen et al., (1985) found that there is evidence that school-age children see children

with ADHD as deviant (deceitful and dishonest) and problematic (causing problems in the classroom). Campbell and Paulauskas, (1979) found that not only do parents and teachers perceive children with ADHD as having problems in peer relations, but children with ADHD, when referred to the school psychologist for assessment, oftentimes rate themselves as less popular and less happy than other children. This last finding provided suggestive evidence that hyperactive children may be aware of their difficulties with peers.

Social Skill and Performance Deficits of Children with Attention Deficit Hyperactivity Disorder

There has been little agreement, among researchers, whether children with ADHD have social skill deficits, performance deficits, or both. Some researchers (Grenell et al., 1987; Guevremont et al., 1994) believed that both social skill and performance deficits had an impact on ADHD, while other researchers (Whalen et al., 1985; Wheeler et al., 1994) believed only one of the two deficits impacted children with ADHD. A social skill deficit is when a child does not possess the knowledge or behavioral skills necessary for successful interactions. In contrast, a performance skill deficit is when a child may possess the skillful behavior but may not carry out the behavior frequently enough or in the appropriate situation.

Whalen et al., (1985) found no compelling data to support the notion that children with ADHD experience social skill deficits. They claimed that children with ADHD have difficulties when social tasks require generative skills but not when selective processes

alone are involved. This finding led them to believe that the social problems of children with ADHD were due to performance or production deficits. Children with ADHD may know how to behave in a social situation, yet do not behave appropriately. Whalen et al., (1985) found that children with ADHD, if presented with response alternatives, could correctly respond, yet when expected to make up their own response to a similar social situation, problems arose.

Grenell et al., (1987) did a study on both social skill deficits and performance deficits. They found that children with ADHD had social skill deficits in that they were less companionable (less desirable to work with), more assertive or aggressive, and were more impulsive compared to control children. It was found that children with ADHD had difficulties in knowing how to maintain a relationship and handle interpersonal conflict. These children were also rated by peers as less desirable to work with. It was concluded that children with ADHD had deficits in both their social knowledge and in their performance of social skills.

Similar to the findings of Grenell et al., (1987) that children with ADHD had both social skill and performance deficits, Guevremont et al., (1994) described four areas in which children with ADHD had social skill and performance deficits. The first area was high-rate, intrusive overt behavior. Specifically, children with ADHD talked more and displayed more aggressive (argumentative) behavior. More disruptive, controlling and noisy interactions with peers was also evident among children with ADHD than among

non-ADHD children. These interactions and nonverbal behaviors were associated with social rejection in childhood.

The second area was deficient communication and collaboration. Children who did not have ADHD tended to be more responsive to the initiations of children with ADHD than the child with ADHD were to the initiations of non-ADHD peers. Children with ADHD were also less likely to adjust their social communication behaviors to the demands of the situation.

The third area Guevremont et al., (1994) discussed was social cognitive performance. Previous research from Dodge and Newman (1981) showed that children with ADHD had deficits in social cognitive skills. These skills included being able to problem solve social situations, and being able to think about social situations cognitively as they occur. The children in this study made quick responses without giving attention to relevant social cues (subtle tips), and had selective recall of hostile cues over nonhostile cues. Dodge et al., (1981) concluded that these deficits led to an attributional bias (believing that peers are hostile and then when peers do act hostile toward the ADHD child, the belief is confirmed).

The final area Guevremont et al., (1994) discussed was how children with ADHD often showed greater degrees of explosive, oppositional and unpredictable behavior. Aggressive children with ADHD suffered more peer rejection than children who were either purely ADHD or purely aggressive.

Wheeler et al., (1994), however, obtained findings that differed from Grenell et al., (1987) and Guevremont et al., (1994). According to Wheeler et al., performance deficits were easily observed in children with ADHD. The presence of a child with ADHD in the classroom led to an increase in disruptive behavior, which resulted in more time spent on disciplinary actions by the teacher. Wheeler et al. concluded that the children with ADHD did possess appropriate social knowledge (they were found to engage in social initiations) and so their difficulties were due more to performance deficits rather than to lack of skills.

These contradictory findings may be due to the ways the studies were carried out. The different authors may have been looking for different social skills (e.g. Whalen et al., (1985) looked at general measures of social skills, whereas, Grenell et al., (1987) looked at specific social skills) when conducting their studies. Overall, these studies indicate that children with ADHD either have performance deficits only, or a combination of performance and social skill deficits.

Impact of Aggression on Children with Attention Deficit Hyperactivity Disorder Who Have Poor Peer Relations

When looking at both ADHD and aggression, three groups of children have been studied in regard to their social skills. These include children with ADHD who are not aggressive, non-ADHD children who are aggressive, and children with ADHD who are also aggressive. These areas will be discussed below, with the main focus on children with ADHD who are also aggressive.

Pelham et al., (1982) focused on children with ADHD who had classroom and teacher-disturbing behaviors. They studied aggressiveness in hyperactive children and found from analyzing sociogram factors that peers believed that children with high levels of either hyperactivity or hyperactivity with aggression (described as offensive) engaged in classroom and teacher-disturbing behaviors (not sitting still, clowning around, not paying attention, showing off, and being rude to the teacher). These high levels of hyperactivity and aggression resulted in peer dislike. The relationship between the degree of hyperactivity, degree of aggression, and peer ratings of dislike, however, remains unclear.

Milich and Loney (1979) found that excessive hyperactivity, rather than excessive aggression was related to low peer acceptance. These findings are contradictory to Pelham et al., (1982). One possibility for this difference is that Pelham et al. used peer ratings and Milich et al. used teacher ratings of peer relationships. This is important because, as previously stated, peers and teachers hold different expectations of what are appropriate and inappropriate behaviors. Milich et al. also found that the severity of teacher-rated hyperactive symptoms was related to the severity of teacher-perceived peer dislike. Pelham et al. argued that the safest conclusion was that hyperactive children, who also show aggression, obtain poor ratings from peers, especially on items that reflect aggressive behavior. However, children with ADHD low in aggression also appear to be disliked by peers. The reasons for this remain unclear.

Whalen et al., (1985) found that childhood aggression had an impact on the daily lives of children with ADHD. These aggressive children were often disliked, targets of peer aggression, and tended to be excluded from social activities. Whalen et al. noted that one perplexing aspect of the literature, however, was that aggression was not consistently associated with unpopularity and peer rejection.

Pope, Bierman, and Mumma (1989) also studied ADHD and aggression. Results showed that both ADHD and aggression contributed to peer rejection. However, they also found that ADHD was the main determinant of peer relations, contributing to both low peer acceptance and high peer rejection. It was also concluded that out of the three core behaviors of ADHD, it was the inattentive or impulsiveness of children with ADHD that impaired their peer relations and not their motor overactivity. This conclusion is supported by another study, (Sandler, Hooper, Watson, Coleman, Footo, & Levine, 1993), in which data indicated that inattention alone may be a social risk factor. It is important to note that this finding raises the possibility that children who are unaggressive and nonhyperactive may also encounter social difficulties because of inattention. Wheeler et al., (1994) also found similar findings, and suggested that impulsivity was a powerful behavior which could affect social relationships and account for the unpopularity of children with ADHD by influencing the quality of their peer interactions. Wheeler et al. also argued that impulsivity may in fact mediate a performance deficit. That is, children with ADHD, who are impulsive, may also have trouble with social interactions causing

them to act without thinking and to have difficulty in waiting their turn in games, thus being aversive to peers.

Non-Attention Deficit Hyperactivity Disordered Children's Expectations of Children with Attention Deficit Hyperactivity Disorder

In Landau et al., (1991), children's expectations about a partner in a cooperative task were manipulated. These investigators paired two normal children together. In order to create an ADHD expectation, one member of the pair was told that he would be working with a child who disrupted the class, talked out of turn, did not sit still, and acted silly. It was found that this ADHD expectation resulted in less cooperation between children than when no expectations were made. It was also found that children who thought they were working with a child with ADHD were less likely to attribute good characteristics to the hypothetical child with ADHD and were less friendly to the child. Finally, it was found that children who believed they were working with children with ADHD found the task to be more difficult, suggesting that the "normal" child was interacting differently with the hypothetical child with ADHD as a result of the ADHD expectation. This ADHD reputation was then thought by Landau et al. to make children with ADHD more unpopular with their classmates.

Milich, McAninch, and Harris (1992) found similar results. In their study, they brought together 40 unfamiliar boys, none of whom actually had ADHD. These boys were paired and one boy from each pair was falsely told that his partner was in a special class for

behavior problems and that the boy was silly, talked out of turn, and did not sit still. The other partner in the dyad was only told his partner's name and grade. Findings revealed that the boys who believed they were working with a child with ADHD participated less in the interactions with the perceived child with ADHD, making the task more difficult for the perceived child with ADHD, thus producing less collaboration in their interactions. These boys were also less friendly toward their perceived partner with ADHD, spent less time talking to their partner, and made their partner work harder. It was concluded by Milich et al. that even when rejected children learn appropriate social skills, if the child has a negative label, such as being ADHD, children may continue to view them as undesirable. It was also concluded that labels may affect how peers of children with ADHD interpret their behavior and interact with them.

Interventions Aimed at Helping Children with Attention Deficit

Hyperactivity Disorder with Poor Peer Relationships

There are many interventions that are used to help children with ADHD in general and with their peer relationship problems in particular (Barkley, 1989). Many interventions, such as dietary treatments, running, biofeedback training, and simply teaching children with ADHD to interact in more socially desirable ways, are lacking in study replication (have not found similar results when replicated -not reliable). Interventions with some proven efficacy for ADHD, as stated in Chapter Two, which are also used for peer relationships, are psychopharmacological therapy (medications), behavior therapy,

cognitive-behavioral training and a combination of these treatments. Peer-mediated interventions are also gaining recognition as a way to help children with ADHD.

Psychopharmacological Therapy

Granger et al., (1993) discussed how many studies have shown that methylphenidate dramatically reduces the rates of uncontrolled aversive behaviors (immature, overactive, annoying, disruptive). There is little evidence, however, of the medication effects on socially appropriate or positive behaviors. Research on the social world of children with ADHD and the effect medication has on it has been even more undeveloped.

Whalen et al., (1979) and Whalen et al., (1981) have shown that while stimulants help children with ADHD in a structured communication task, they increased negative affect (behaving insincerely) and decreased positive affect toward others. These studies raise concerns about the effects of stimulant medication on ADHD peer relations, as these children continue to have serious problems in peer relationships.

Pelham et al., (1982) looked at the effects of pemoline and methylphenidate on the peer relations of children with ADHD. Their results with pemoline gave false expectations regarding drug response on peer interaction measures. For example, the nonaggressive children with ADHD had peer interactions that worsened on pemoline, while at the same time, the teacher rated their classroom behavior as improved. This study was consistent with others in offering little support that psychostimulants have a favorable effect on the poor peer relationships of children with ADHD.

Wallander et al., (1987) found in their study that hyperactive children's social initiation behavior had no change when given medication. Consistent with previous finding, they also found that oppositional, off-task and on-task behaviors improved. When on medication, children with ADHD decreased their approach to peers in the classroom, causing those peers to decrease their responding and attending to the children with ADHD. The social interactions of children with ADHD were not increased. Wallander et al. concluded that, although medication does not increase social interactions by itself, a combination of approaches may be the answer to helping children with ADHD with their peer problems.

Finally, Granger et al., (1993) found in their study that medication reduced aggressive, disruptive, and noncompliant behaviors in children with ADHD. The medication also increased socially withdrawn and passive behaviors in these children. There was no effect, however, for more mundane acts, such as rule following. Wallander et al., (1987) also found that the stimulant medication, methylphenidate, did not change the social approach behaviors of children with ADHD.

Behavior Therapy

Behavioral interventions have also been used to improve peer relationships. Although evidence is not abundant, it has been shown that these interventions can produce short-term improvements in the classroom behavior of children with ADHD, just as psychopharmacological therapy does.

Three different treatments were used by Pelham et al., (1982) to see which would enhance the peer relations of children with ADHD. One treatment used in the study included an operant training approach which used tokens or social reinforcement to increase positive social interactions with peers. This approach focused primarily on using environmental contingencies to help achieve the desired behavior and that these behaviors were met with the appropriate consequences. Another treatment used in the study was coaching (educating) and modeling. Coaching is when someone teaches a child with poor social skills and helps them improve through the teaching. Modeling is when the child learns from watching people interact in a socially-appropriate manner. The adult does not need direct contact with the child. These two approaches focused on teaching specific skills (either directly or indirectly) to children who had poor peer relationships. Finally, a combination of the two treatments was used to see if it had a beneficial outcome with peer relations.

Results indicated that the reinforcement program had no effect on improving the children's poor peer relations. The modeling and coaching programs also resulted in no improvement in poor peer relations. However, the combination of the two programs did result in an improvement in peer relationships. According to the authors, the children with ADHD had a social skill deficit and once the social skill had been taught, a motivational system needed to be implemented to produce improved peer relations. The authors believed that children would not improve their behavior just because they had been told

how to do it, but instead needed reinforcement to improve and then maintain the improved peer relationships.

Guevremont (1990) discussed a social skill training program for children with ADHD that consisted of teaching these children social entry skills, conversational skills, conflict resolution and problem solving skills, and anger control skills. The first session consisted of an introduction and orientation in which no social skills were taught. Sessions two through four taught children with ADHD social entry skills (skills needed to initiate or join the ongoing interactions of another child or a group of children). Guevremont found that this helped foster positive peer relations in the classroom. Role playing, coaching and feedback were used during this session.

During sessions five through seven, conversational skills were taught (skills that address the child's ability to maintain social interaction and to develop and maintain friendships). This is a basic skill that is lacking in children with ADHD and can be a cause for the negative peer relations with children with ADHD (i.e. the child with ADHD communicates less efficiently, may become frustrated, and then aggressive due to their deficiency in communication skills). Dyads were formed to work on communication skills and the final sessions involved extending the conversational activities to three or four children.

Conflict resolution and problem solving were worked on during sessions eight through ten. Guevremont (1990) argued that children who had peer relation problems tended to

think of fewer solutions to problems, failed to anticipate consequences for their actions correctly, and thought up less developed plans for implementing solutions to problems than did popular children. Vignettes were developed to work on these deficits.

Finally, in sessions ten through fourteen, anger control training was implemented. Children with ADHD often had difficulties with aggression and anger which could contribute to poor peer relations. Children with ADHD were often teased for their disruptive behavior causing them to become verbally aggressive. Discussions were held during these sessions about anger. The children were then taught to be more sensitive to internal cues of anger. The children chose a plan for responding to situations that could provoke anger, and then practiced using self-control in a "teasing circle." Guevremont (1990) concluded that short term skill training programs do not create a lasting change and that long- term programs, like this one described, which used therapeutic sources, parents and peers, are essential to creating meaningful behavior change.

Finally, Guevremont et al., (1994) used token reinforcement and social skill training in their study. Social skill training includes four objectives: increase the awareness of appropriate social behavior; teach prosocial behaviors that are deficient in the child's social repertoire; enhance the child's use of the prosocial behaviors in the natural environment; and alter the child's social status. Guevremont et al. found that when one combined token reinforcement and social skill training a decrease in uncooperative behavior occurred. However, because the two treatments were only used together,

Guevremont et al. were not able to determine if one treatment caused the behavior change with the other making no change or having less of an impact, or if it was the actually combination that caused the behavior change.

Behavioral Therapy and Medication

Pelham et al., (1982) combined psychostimulant medication and social skill training in their study. There were six different treatment groups in this study. One group was a no-treatment control group. A second group participated in an eight-week social skills training program only (children were taught concepts of communication, participation, and cooperation). The remaining children were divided into four groups. All the children in these four groups received a standard behavioral intervention consisting of parent and teacher training in contingency management (designing an individual contract with the student which describes what the student must do to earn a particular privilege or reward). While the behavioral intervention was being implemented, half of the children received social skill training, and the other half received stimulant medication. The four groups were: (1) behavioral intervention, social skills training, and methylphenidate, (2) behavioral intervention, and methylphenidate, (3) behavioral intervention, social skill training, and placebo, and (4) behavioral intervention and placebo.

Results showed that children in the social skill training only group did not show improvement in peer relations, and were rated more negatively by peers at the end of treatment. There was also no improvement noted for children receiving

behavior therapy and either methylphenidate or social skill training or the combination.

The children who received methylphenidate and behavior therapy were rated as improved by teacher ratings and peer nominations.

Pelham et al., (1982) concluded that behavior therapy along with medication was an effective treatment for these children with ADHD, and that an intervention that focuses entirely on social skills is ineffective in improving peer relationships. Pelham et al. also reported that behavior therapy, when combined with methylphenidate had the largest effects on improving peer relationships. Pelham et al. concluded, with unfortunate results, that when the medication was discontinued, the effects disappeared (the children are again rated negatively by peers).

Cognitive-Behavioral Therapy

Cognitive-behavioral interventions have also been used with hyperactive children. Very few, however, address the poor peer relations of children with ADHD. Cognitive-behavioral interventions usually entail a combination of self-talk and problem-solving, and with hyperactive children, are aimed at increasing attention and decreasing impulsivity.

In a study performed by Douglas, Parry, Marton and Garson, (1976) modeling, self-verbalization, and self-reinforcement techniques were used to train children with ADHD to cope more effectively and independently in social situations. In the modeling and self-verbalization techniques, the trainer performed a task while verbalizing aloud

about the nature of the problem and the strategies he/she was using. The child then did the same and as the sessions progressed, the child was told to verbalize less and less and finally told to "talk to himself." Strategies were also taught for playing games or cooperating on tasks with peers. Emphasis was placed on taking turns, trying to figure out the strategy of the opponent and becoming sensitive to the other child's motives and feelings. The trainer modeled thoughts such as, "I'd like to make my move now but I have to wait my turn," and "It looks like I'm making John mad by teasing him so much. I guess I'd better stop."

Douglas et al., (1976) found that the cognitive training had a positive effect on the ability of the children to respond less aggressively and cope more effectively with frustration, which resulted in less peer dislike. These findings were based on the Story Completion Test that taps a child's response to frustrating events. The child is asked to choose between three responses to the story: (1) aggressive (involves direct, uncontrollable expression of aggression), (2) withdrawal (retreats, usually in tears), and (3) realistic problem solving (response that reflect a realistic response to the disappointment, an attempt to make the best of the frustrating situation). Improvement was found on this measure at the time of posttesting.

Guevremont et al., (1994) believed that problem solving (part of cognitive-behavioral therapy) was often used to improve the poor peer relations of children with ADHD because many children with ADHD did not take the time to think of other solutions to

their problems. Poor impulse control was thought to be the reason for their quick responses to their problems. Guevremont et al. also argued that there were many problem-solving methods but they all mainly consisted of identifying and defining the problem, generating multiple solutions, evaluating the solutions, considering how to implement the solution chosen, and then implementing and evaluating the solution. These steps were taught through modeling, rehearsal, instruction, and feedback.

Cognitive-Behavioral Therapy and Medications

Few studies have been focused on the effects of the combination of cognitive-behavior interventions and medication on peer relations of children with ADHD. Hinshaw et al., (1984a) performed a study which combined a cognitive-behavioral intervention with medication. The cognitive-behavioral intervention consisted of a self-evaluation procedure. Practice of self-evaluation skills were done, which involved role plays of social interaction and playground events. The trainers then modeled a behavioral criterion (paying attention, doing work), and explained that they would rate each boy's performance of a certain behavior criterion on a 1-5 scale. The boys were supposed to monitor their own behavior, evaluate their performance in comparison with the behavioral criterion, and then estimate what the trainer had rated their performance.

There were four combinations in the study. These included: (1) medication plus cognitive-behavioral self-evaluation, (2) placebo plus cognitive-behavioral self-evaluation, (3) medication plus reinforcement alone, and (4) placebo plus reinforcement alone. In the

reinforcement alone condition, participants received point values equal to double their rated scores for each rating period (e.g., a boy with a rating of 3 received 6 points). In the reinforced self-evaluation condition, the boys received points equivalent to their rating by the trainer and then received additional points based on their accuracy of their self-evaluation.

Results from the study found that medication plus cognitive-behavioral self-evaluation proved to be optimal. It was believed that the methylphenidate significantly enhanced the accuracy of the self-evaluation, which led to better peer relations. Placebo plus reinforcement-only proved to be significantly worse than all the other conditions.

Hinshaw et al., (1984b), in their second study, found opposite results. During the first week of the program, training sessions were implemented. The training sessions during the first week focused on steps for problem-solving, instruction in self-talk strategies, and a discussion of attitudes toward stimulant medication. In the second week of training, the participants were told about the upcoming focus on social problems and were asked to share names and phrases that were bothersome to them.

In week three, the provocations began. There were three peers plus two adults that served as provokers. During the middle of the week a cognitive-behavioral condition, a control training condition, and the medication were introduced. The cognitive-behavioral condition emphasized the recognition of the external threats or triggers that might produce anger; identifying the signs of the anger; the use of problem-solving to generate alternative

behavioral responses; and the development and practice of strategies to help with self-control after provocation. The control training condition emphasized the understanding of the perspectives of the other person. The goal was to help social problem-solving and perspective-taking, and increase empathetic responses.

Results from the study found that the boys trained in the cognitive-behavioral condition used more coping strategies and displayed better self control than did participants in the control intervention. There was no advantage, however, for the combination of methylphenidate plus cognitive-behavioral intervention. Hinshaw et al. (1984b) account for this difference by suggesting that the brief provocation assessments did not provide the optimal means for detecting stimulant effects.

Peer-Mediated Interventions

Peer-mediated interventions are another way to help improve peer relations of children with ADHD. These peer-mediated interventions are an alternative to the classical social skills training. This type of intervention includes putting a socially well-adjusted peer with the child with ADHD to help bring the child with ADHD into the peer group. This type of intervention is new and no research is currently available on the degree to which peer-mediated interventions help improve the peer relationships of children with ADHD.

Circle of Friends is a relatively new peer-mediated intervention program (Sensor, 1995). This program has been a growing intervention that school psychologists use with children who have disabilities or other difficulties. This program is not only used with

children with ADHD but with all children who have disabilities. The program involves all peers in the classroom and is designed to help peers understand the child who has ADHD or other disorders and disabilities form circles of friends. The goals of this program are to increase peers' awareness of many disabilities, provide simulation activities so children can "experience" the disability, improve children's sensitivity toward children with disabilities, and increase children's peer friendship/support skills. There is the belief in the program that cooperation and equal status of participants is required in circle of friends if peer rejection is to be reduced. Hymel, Wagner, and Butler, (1990) believed that training peer groups to change their view of children with ADHD can help peer relations of children with ADHD.

The philosophy behind circle of friends lies in the idea that there are several levels of friendships in our lives. In the middle, smallest circle, is yourself. The circles get larger as you move farther from the center. Moving outward from yourself, respectively, are your family, friends, associates, and paid associates. When looking at a child with a disability, the child often does not have many people in their family and friends "circles." Circle of friends tries to build the students' circle of friends and build friendship through knowledge (Sensor, 1995).

In building the hyperactive child's circle of friends, the school psychologist, counselor, or teacher has the whole class come together to discuss ADHD and do an activity about ADHD. Before the first circle of friends gathering, a pre-attitude survey is given to the

class to assess their attitudes toward children with disabilities. The school psychologist, counselor or teacher can then work from this survey. At the end of the sessions (4 weeks to half a year depending on the grade), the school psychologist can then use the post-attitude survey (the pre- and post-attitude surveys are the same) to see if the class's attitudes about disabilities has changed (Sensor, 1995).

Chapter 4: Conclusions, Implications for School Psychologists, & Future Research

Conclusions

Attention Deficit Hyperactivity Disorder affects approximately 3% of elementary students (Wheeler et al., 1994). About half of these children begin to display ADHD symptoms before the age of four; however, many children are not diagnosed until around six years of age. Their entry into elementary school, in which new demands, parental expectations and rules are placed upon them, helps to make parents and teachers aware of these behaviors. This then leads to referral and perhaps an eventual ADHD diagnosis.

There are three main symptoms of ADHD: inattention, impulsivity, and hyperactivity. The DSM-IV has several core behaviors that have been identified as symptoms of ADHD. To make an ADHD diagnosis, a child needs to exhibit at least six of the core behaviors, to an extreme degree, for at least six months. Determining the frequency, duration, and severity of the behaviors is important in diagnosis so that a misdiagnosis is not made.

There are many consequences of ADHD, including higher juvenile delinquency rates, poor academic achievement, incidences of psychopathology, lower IQ, higher injury rates, and poorer family relationships. It can be predicted that children who have ADHD are likely to experience at least some of these problems in their lives.

Different interventions are used to help modify the behavior of children with ADHD.

These interventions include: stimulant medication, behavior therapy, cognitive-behavioral training and a combination of these treatments. Currently, stimulant medications (ie. use of Ritalin) are the most frequently used approach to the alleviation of children's ADHD symptoms and associated difficulties (Cunningham et al., 1985). Stimulant medication is popular because of its quick results in reducing disruptive behavior. Medications, however, have side effects, and do not "cure" the child with ADHD.

Behavioral interventions have also been found to be effective (Pelham, et al., 1980). The improvements in behavior, however, have generally been short-term. Behavioral interventions include using positive and negative reinforcement, punishment, and modeling. Social skill training is also part of behavioral interventions. It is in this training that children with ADHD learn about appropriate and inappropriate social behavior, and learn some skills for dealing with their behavior appropriately (Guevremont et al., 1994). Behavioral interventions used in conjunction with medication has been found to have positive effects on children who have ADHD.

Cognitive-behavioral interventions have shown some promise in the treatment of ADHD. These interventions teach children cognitive strategies for solving academic problems and enhancing interpersonal exchanges. These interventions teach children to regulate their own behavior. The combination of cognitive-behavioral interventions and medication have also shown mixed results.

Social interaction is thought to be essential to optimal development (Quay et al., 1989).

The social skills of children with ADHD are of concern because these skills are associated with serious problems such as school dropout, juvenile delinquency, police contact, job termination, schizophrenia, and other psychiatric impairments in adolescence and adulthood (Whalen et al., 1985).

Peer relationships can be measured through a variety of methods. These methods include interviews, observations, and sociometrics. Behavior checklists have also been considered valid measures of peer relations. When behavior checklists are utilized, teachers and parents have been found to be very helpful when measuring peer relations of children with ADHD.

Communication skills are thought to be partly responsible for the poor peer relationships experienced by children with ADHD (Frederick et al., 1994). These children communicate less efficiently, request less feedback, and disagree more often than other children. Aggression is another trait that correlates with poor peer relations. Children with both ADHD and aggression have been found to be more rejected by peers than children who do not have ADHD but are aggressive.

Peers of children with ADHD often perceive the child with ADHD as the cause of negative teacher attention. This then leads to peer rejection (Frederick et al., 1994). Children with ADHD are also found by classmates to be irritating, objectionable, and disruptive. When peers evaluate children with ADHD, they are oftentimes evaluated quite negatively.

The study of social skill and performance deficits among children with ADHD has resulted in mixed findings. Grenell et al., (1987) and Guevremont et al., (1994) found that children with ADHD had both social skill and performance deficits. Whalen et al., (1985) and Wheeler et al., (1994) found that children with ADHD have peer problems due to performance deficits only. These contradictory findings may be due to the different methodologies used in the studies. The authors may well have been looking for different social skills.

Children with ADHD who are also aggressive have been studied. Aggression is thought to impact the daily lives of children with ADHD (Whalen et al., 1985). Pelham et al., (1982) found that high levels of hyperactivity and aggression resulted in peer dislike. The relationship between the degree of hyperactivity, degree of aggression and peer ratings of dislike, however, remains unclear.

Studies on non-ADHD children's expectations of children with ADHD (Landau et al., 1991; Milich et al., 1992) found that having an ADHD reputation makes children with ADHD more unpopular with their classmates. It was found that even when rejected children learn appropriate social skills, if the child has a negative label, such as being ADHD, other children may continue to view them as undesirable.

Interventions aimed at helping children with ADHD develop better peer relations have been investigated. Interventions which have been assessed for their impact on the peer relations of children with ADHD are psychopharmacological therapy (medication),

behavior therapy, cognitive-behavioral therapy, and a combination of these treatments. There is little evidence of medication effects on socially appropriate or positive behaviors or related peer relationships. The social interactions of children with ADHD did not increase when on medication, and these children continued to have serious problems in peer relationships.

Behavioral interventions have been found to result in short-term improvements in the classroom behavior of children with ADHD. When social skill training was combined with reinforcement, decreases have been found in uncooperative behavior. Similar results have been found with interventions such as modeling and coaching when used with reinforcement in tandem.

Behavioral therapy and medication have been found to positively impact the peer relations of children with ADHD (Pelham et al., 1982). However, when medication was discontinued, the positive effects disappeared and the children with ADHD again received negative ratings.

There have been very few cognitive-behavioral interventions that address the poor peer relations of children with ADHD. Douglas et al., (1976) found that cognitive training had a positive effect on the peer relations of children with ADHD. These children were able to respond less aggressively and cope more effectively with frustration.

The combination of cognitive-behavioral therapy and medication has had mixed results. Again there are few studies that have researched the effects of the combination of these

two treatments. In Hinshaw et al., (1984a), medication plus cognitive-behavioral therapy was effective in helping children with ADHD and their peer relations. In a second study, however, Hinshaw et al., (1984b) obtain opposite results. They concluded that there was no treatment advantage for the combination of methylphenidate plus cognitive-behavioral intervention. Hinshaw et al. (1984b) accounted for this difference by suggesting that the brief assessments in the second study did not provide the optimal means for detecting stimulant effects.

Peer-mediated interventions are relatively new and there is no current research available on the degree to which peer-mediated interventions help improve the peer relations of children with ADHD. One particular peer-mediated intervention, Circle of Friends, is gaining some popularity among school psychologists. There again is no current research available which supports the effectiveness of this program.

Implications for Practice of School Psychology

When diagnosing children with ADHD, the school psychologist must realize that over 50% of these children have poor peer relations (Pelham et al., 1982). With this mind, after diagnosing a child with ADHD, the school psychologist should immediately start interventions aimed at improving peer relations. By starting interventions early, the later difficulties that these children are at risk for (i.e. academic difficulties, juvenile delinquency, etc.) may also be reduced. School psychologists must be aware of these risks so they can look for their signs, such as poor grades, grade retention, aggression, lower

IQ, and so on. When signs of these risks become noticed, the school psychologist should deal with the risks immediately to prevent as much harm as possible to the child.

When measuring peer relations, the school psychologist must use reliable and valid methods for assessment. When observing, interrater reliability should be established. It is also important to do observations in multiple settings in order to increase validity and to get accurate data of the child's actions and behaviors. Behavior checklists for teachers should not be used. There is no reliability or validity evidence for these scales.

There are mixed findings on whether children with ADHD have social skill deficits, performance deficits, or both. Each child with ADHD should be assessed to try to determine which type of deficit(s) the child has. The intervention for the child with ADHD would then be individualized to help the personal needs of that specific child.

Finally, the school psychologist must be aware that medication does not help children with ADHD and their peer relations. If the child is on medication, this cannot be expected to also help peer relations. Additional interventions, such as behavioral or cognitive-behavioral, should be used.

Future Research

When looking at the social status of children with ADHD, valuable information may be obtained by analyzing the social skills of socially accepted children with ADHD rather than investigating peer rejection (Frederick et al., 1994). Over 50% of children with ADHD have poor peer relations (Pelham et al., 1982). Patterns of establishing friendships,

competent communication skills, properly entering and exiting a conversation, and accepting criticism, can be looked at in association with social competence. This information could be useful in the design of treatment approaches to help children with ADHD with their social skills.

Continued research on the social skill and performance deficits of children with ADHD needs to be conducted. Mixed results regarding social skill deficits and performance deficits clearly signal the need for further research in order to determine the exact deficits children with ADHD have. This information could help us to better understand why children with ADHD have the trouble they do with peers, and help educators design more effective intervention programs.

Although there has been research on the consequences of poor peer relations of children with ADHD, no causal relationship has been established between poor peer relations and juvenile delinquency, IQ, academic achievement, etc.. More prospective studies are needed to determine the strength and nature of the relationship between children with ADHD, their peer relations, and later adult maladjustment. These findings could help increase the awareness of how important peer relations are to children with ADHD. With this awareness, early intervention could be implemented to help reduce the chance that the child with ADHD would have poor peer relations.

Social skill interventions with children with ADHD have not received enough research attention, and results have been mixed and inconsistent. More attention is also needed

regarding hyperactive children's generalization of social skills to the home and school. In addition, peer-mediated interventions are a type of intervention that deserves considerably more attention in research. There are currently no peer-mediated interventions for children with ADHD who have poor peer relations.

Finally, interventions using medicines needs to be further researched. Although medication reduces aggression, disruption, and noncompliant behaviors in children with ADHD, the social interactions of children with ADHD do not change (Guevremont, 1994). Further research may help to determine why the medications reduce problematic behaviors but do not enhance children's peer relationships. The combination of medication and other treatments do show some positive results, and with continued study, researchers may find other combinations of interventions that help children with ADHD maintain satisfying transactions with their peers.

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