Occurrence and Pattern of Impaired Reading and Written Language in Children with Attention Deficit Disorders

Jean C. Elbert

Child Study Center
University of Oklahoma Health Sciences Center
Oklahoma City, Oklahoma

The purpose of this study was to investigate the occurrence and severity of reading, spelling, and written language impairment in children clinically referred for Attention Deficit Hyperactivity Disorder (ADHD). Specific questions involved 1) whether ADD subgroups with and without hyperactivity differ in reading, spelling, and written language achievement, 2) whether age and gender interact with ADD sub-group class to affect reading/written language achievement, and 3) whether prevalence of impaired reading/written language in these subgroups is consistent with previous reports in heterogeneous samples. Subjects were 115 ADD children aged 6-12 who were subclassified as ADD + H (72 percent) and ADD - H (28 percent) by objective teacher ratings. Dependent measures included tests of single word recognition and vocabulary, word attack, contextual comprehension, written spelling, written sentence construction, and writing fluency, in addition to a structured behavioral observation, during which aspects of inattention and motor activity were coded. A large fraction of this sample met public school LD criteria (54 percent), and achievement on most measures was globally poorer than the respective test normative groups. The ADD + H subgroup showed significantly poorer word attack skills, while the subgroups did not significantly differ from each other on other reading/written language measures. However, 17 percent of the total ADD sample were ≥ 1.5 SD below the mean in total reading achieve-
ment, and 29 percent were \( \geq 1.5 \) SD below the mean on measures of written spelling/language. Gender X age interactions, indicating poorer performance in the middle age group of females, were likely related to lower IQ.

**Introduction**

Children who present clinically with Attention Deficit Hyperactivity Disorder (ADHD) (formerly labeled Minimal Brain Dysfunction, Hyperactive Child Syndrome, and Hyperkinesis) frequently exhibit 1) age-inappropriate levels of attention, impulsivity and overactivity; and 2) poor modulation and self-regulation of behavior. Despite a large body of research, it is clear that the symptoms of ADHD characterize a very heterogeneous group of children, and recent research efforts have focused on defining more homogeneous groups of children with ADD.

There is increasing rejection of the current unidimensional, polythetic definition of ADHD (American Psychiatric Association 1987) (which eliminated a previous diagnostic distinction between symptoms of inattention and hyperactivity). Much current investigation has involved differentiation among children with attentional deficits who have co-occurring motor hyperactivity, and those who do not (e.g., Goodyear and Hynd 1992). Investigators have suggested differing hypotheses regarding the hyperactivity dimension: 1) Attention Deficit Disorder with Hyperactivity (ADD + H) and Attention Deficit Disorder without Hyperactivity (ADD − H) are two subtypes of the same underlying CNS Dysfunction; and 2) ADD + H and ADD − H are separate and independent CNS disorders, which frequently co-occur, (Barkley 1990).

It is well known that attentional disorders frequently co-occur in children with specific learning disabilities (Shaywitz and Shaywitz 1991). Estimates of the degree of LD − ADHD comorbidity range from as low as 10 percent (August and Holmes 1984) to as high as 92 percent (Silver 1981). Such widely varying prevalence estimates in large part represent differences in definition of LD. Barkley (1990) has shown that, when conservative criteria are used to define LD (subjects performing \( \leq 1.5 \) SD on an achievement test and having a 1.5 SD IQ-Achievement discrepancy), between 19 percent and 26 percent of ADHD children have at least one type of LD.

However, the nature and direction of the relationship between ADD and LD remain unclear. Rowe and Rowe (1992) have recently utilized structural equation modeling to show that there are strong reciprocal effects: inattentive behaviors led to reduced achievement; poor reading achievement, mediated by attitudes and reading activity at home, led to increased inattentiveness in the classroom. Douglas