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THE CONNERS' CONTINUOUS PERFORMANCE TEST COMPARED WITH THE ATTENTION PROBLEMS SCALE OF THE CHILD BEHAVIOR CHECKLIST IN ADHD CHILDREN

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Running head: CONNERS' CPT & THE CBCL ATTENTION PROBLEMS SCALE

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ABSTRACT

This study examined the relationship between errors of omission and commission on Conners' Continuous Performance Test (CPT) and parental report of behavior ratings as demonstrated by the Attention Problems scale of the Child Behavior Checklist (CBCL). The study was conducted using 33 children who were clinic-referred for assessment of behavioral and/or learning problems. The CPT was administered individually to the child via computer while the parent completed the CBCL. CPT inter-item reliability was found to be borderline (.7960) for Omission Errors and unacceptable (.7748) for Commission Errors. A Pearson correlation matrix revealed significant correlations among Age and Attention Problems Scale, Age and Omission Errors, and Age and Commission Errors. Likewise, a stepwise multiple regression analysis using the Attention Problems Scale of the CBCL as the dependent variable indicated age alone as a significant predictor of parental report with regard to attention problems. Consequently, the study found that the Conners' CPT scores of omission and commission do not correlate and should not replace a thorough diagnostic evaluation.

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From "Minimal Brain Damage" to "Minimal Brain Dysfunction" to "Hyperkinetic Impulse Disorder" to "Hyperactive Child Syndrome" to "Hyperkinetic Reaction of Childhood" to "Attention-Deficit Disorder," the disorder officially termed "Attention-Deficit/Hyperactivity Disorder" (ADHD) in 1987 has been noted since the turn of the century. It is one of the most common Axis I childhood disorders, occurring in as many as 3-5% of school-aged children (American Psychiatric Association, 1994). It has become one of the most researched disorders in medicine (Goldman, Genel, Bezman, & Slanetz, 1998). As its diagnostic popularity increased so the controversy surrounding the diagnosis increased.

Some question the mere existence of the disorder. Allegations have been made that ADHD diagnosis is used to prescribe medication that controls children who display undesirable behavior in classrooms or elsewhere (Goldman, Genel, Bezman, & Slanetz, 1998). Many others who acknowledge the existence of the disorder agree that diagnosis is, at best, less than scientific. There is no decisive measure for ADHD. Clinicians must rely on the reports of parents and teachers to sustain diagnosis.

To give credibility to the diagnosis the majority of sources recommend a thorough evaluation by a qualified professional. The evaluation should amass information about the patient's history, family history, school and home behavior, intelligence, academic achievement, emotional adjustment, peer relations, parental child-rearing practices, medical history, and syndrome-specific behaviors (e.g. attention, impulsivity, and hyperactivity).

The most common method used to obtain information about school and home behavior is the behavior rating scale. Achenbach's Child Behavior Checklist (CBCL) is a behavior rating scale completed by the child's parents. It has become a standard against which many other instruments are compared (Furlong & Wood, 1998).

Kasius, Ferdinand, van-den-Berg, and Verhulst (1997) tested the convergence between the empirical-quantitative approach of the CBCL and the clinical-diagnostic approach of the DSM-III-R (American Psychiatric Association, 1987). The researchers used the parent version of the NIMH Diagnostic Interview Schedule for Children (DISC-P) following parental completion of the CBCL. Among other results, the study found the Attention Problems scale of the CBCL to be the only marked predictor of homogeneous ADHD. Moreover, the results indicate the CBCL scale scores and DISC-P based DSM-III-R diagnoses converged.

A method used to obtain syndrome-specific information is the Continuous Performance Test. Conners' Continuous Performance Test (CPT) is a computerized test of vigilance or attention. Epstein, Conners, Sitarenios, and Erhardt (1998) contrasted CPT scores of 60 clinic-referred adults with ADHD symptoms to normal subjects. Those with ADHD symptoms made more omission and commission errors than normal subjects. Furthermore, Klee and Garfinkel (1983) used a CPT to examine the attention of 51 psychiatric patients ranging in age from 7 to 16. They found significant relationships between the CPT and behavioral ratings of impulsivity, inattention, and hyperactivity.

Thompson and Nichols (1992) conducted a study to examine the relationship between scores on a CPT and parental report on the CBCL. Forty-five boys were assessed with the Pediatric Assessment of Cognitive Efficiency (PACE) CPT individually while his parent rated his behavior on the CBCL. Using the Hyperactive scale of the CBCL as the dependent variable, a stepwise multiple regression analysis did not find CPT omission errors or commission errors to be significant predictors of parental report.

Mannuzza, Klein, Bessler, Malloy, and Hynes (1997) compared educational and occupational outcomes of boys diagnosed with ADHD at an average age of 7 years and boys without ADHD. The follow-up occurred at the mean age of 24 years, and the results indicated that boys with ADHD (a) had completed less formal schooling, (b) had lower-ranking occupational positions, and (c) could not attribute the disadvantages to adult diagnostic status. Because early and accurate diagnosis is crucial to the design of appropriate treatment and the avoidance of such outcomes, many clinicians long for an accurate and efficient measure of attention.

This study was designed to examine the diagnostic appropriateness of an objective measure of attention by comparing the omission percent scores and the commission percent scores of Conners' Continuous Performance Test to the Attention Problems scale of the Child Behavior Checklist.

Method

Participants

Thirty-three (33) cases were analyzed for this study. The subjects were children referred to an outpatient clinic for the assessment of behavioral and/or learning problems. They were given both the CPT and CBCL, and all diagnostic information was available: 0% ADHD, Predominantly Hyperactive-Impulsive Type; 15.2% ADHD, Predominantly Inattentive Type; 33.3% ADHD, Combined Type; 24.2% ADHD, NOS; and 27.3% Not ADHD. The mean age was 8 years, 3 months with a range of 5 years to 15 years. The sample included 67% males and 33% females. Moreover, the sample is comprised of 81.8% Caucasian, 9.1% African American, and 9.1% other ethnicities.

Instruments

According to the manual, Conners' Continuous Performance Test is a test of vigilance or attention that is administered on the computer. The respondent is instructed to press the space bar each time he sees any letter except X. The test consists of 6 blocks with 3 sub-blocks each of 20 trials. For each block, the sub-blocks have inter-stimulus intervals (ISI) of 1, 2, or 4 seconds. The order of the ISI varies between blocks. Each letter is displayed for 250 milliseconds. The program takes approximately 14 minutes to finish, and it yields scores for overall index, hits, omissions, commissions, hit reaction time, hit reaction time standard error, variability of standard errors, attentiveness, and risk taking. An overall index score less than 8 indicates no attention problem. Scores between 8 and 11 are considered uncertain and warrant further examination. An overall index

score greater than 11 offers the heartiest indication of a possible attention problem (Conners, 1995).

The manual acknowledges limited research with the tool, but adds the existing research is complimentary. Barkley (1993) acknowledges its theoretical superiority and recognizes the promising research, but he exerts that more research is needed. Reliability information was not available; therefore, this study used the coefficient alpha method to establish inter-item consistency between blocks. The manual lists several studies attesting to the validity of CPTs in general.

Some studies (e.g. Matier-Sharma, Perachio, Newcorn, Sharma, & Halperin, 1995; Dunne, Arnold, Benson, Bernet, Bukstein, Kinlan, McClellan, & Sloan, 1997) report that CPTs are not typically useful in diagnosis. Other studies (e.g. Fischer, Newby & Gordon, 1995; Lassiter, D'Amato, Raggio, Whitten, et al., 1994; Ludwikowski & Devalk, 1998) provide further evidence in support of the diagnostic utility of the CPT.

The Child Behavior Checklist/4-18 (CBCL) is a behavior rating scale completed in approximately 15 minutes by the parents of children demonstrating behavioral disturbances. This parental report yields T scores for 3 "broad band" scores (Externalizing, Internalizing, and Total Problems), 8 "narrow band" syndrome scales (Withdrawn, Somatic Complaints, Anxious/Depressed, Social Problems, Thought Problems, Attention Problems, Aggressive Behavior, and Delinquent Behavior), and 4 competence scales (Activities, Social, School, and

Total Competence). T scores above 70 are considered to be elevated and indicative of behavioral problems.

The CBCL consists of a 113-item behavior problem checklist and a seven-part social competency checklist. The items are clustered into behavioral syndromes like the diagnostic categories of the DSM-IV (American Psychiatric Association, 1994). Dissimilar from the diagnostic criteria, the CBCL syndromes were entirely empirical in origin. The CBCL checklists and syndromes are valid and often used as the criterion against which other assessment tools are measured (Doll, 1998; Furlong & Wood, 1998).

Furlong and Wood (1998) report favorable reliability results. Of particular interest to this study, the reliability for the Attention Problems scale was found to be satisfactory ranging from .83 to .84.

Both instruments are computer-scored. Various staff members of the outpatient clinic administered the assessments. Administrations were standardized, and all data were scrutinized for accuracy and reevaluated as needed.

Results

First, the issue of the Conners' Continuous Performance Test reliability was addressed. Using the coefficient alpha method, inter-item reliability was found to be borderline (.7960) for omission errors (see Table 1a) and slightly less than satisfactory (.7748) for commission errors (see Table 1b).

Variable means and standard deviations are reported in Table 2. The mean score (T = 69) on the Attention Problems scale of the CBCL is in the borderline clinical range, according to the manual.

A Pearson correlation matrix (see Table 3) revealed significant correlations ($p<.05$) among Age and Attention Problems Scale, Age and Omission Errors, and Age and Commission Errors. Likewise, a stepwise multiple regression analysis (see Figure 1) using the Attention Problems scale of the CBCL as the dependent variable indicated age alone as a significant predictor of parental report with regard to attention problems.

Table 1a

Reliability Analysis – Conners' CPT – Omission Errors

RELIABILITY ANALYSIS - SCALE (ALPHA)

Covariance Matrix

	O block 1	O block 2	O block 3	O block 4	O block 5	O block 6
O block 1	16.4848					
O block 2	5.0350	20.2803				
O block 3	14.2528	17.2415	59.3295			
O block 4	10.7992	6.6439	40.1705	83.0587		
O block 5	5.7689	14.0578	28.8324	80.4697	155.8201	
O block 6	7.2888	22.7481	28.1392	59.1316	94.2405	106.4337

Correlation Matrix

	O block 1	O block 2	O block 3	O block 4	O block 5	O block 6
O block 1	1.0000					
O block 2	.2754	1.0000				
O block 3	.4557	.4971	1.0000			
O block 4	.2918	.1619	.5722	1.0000		
O block 5	.1138	.2501	.2999	.7073	1.0000	
O block 6	.1740	.4896	.3541	.6289	.7318	1.0000

	Mean	Minimum	Maximum	Range	Max/Min	Variance
Item Means	6.7980	4.0303	9.1515	5.1212	2.2707	4.5266
Item Variances	73.5679	16.4848	155.8201	139.3352	9.4523	2847.2862
Inter-item Covariance	28.9880	5.0350	94.2405	89.2055	18.7169	756.7899
Inter-item Correlations	.4002	.1138	.7318	.6180	6.4290	.0385

RELIABILITY COEFFICIENTS - 6 items

Alpha = .7960
Standardized item alpha = .8002

Table 1b

Reliability Analysis – Conners' CPT – Commission Errors

RELIABILITY ANALYSIS - SCALE (ALPHA)

Covariance Matrix

	C block 1	C block 2	C block 3	C block 4	C block 5	C block 6
C block 1	1.2348					
C block 2	.2983	3.1761				
C block 3	.4659	1.1165	1.2670			
C block 4	.4706	1.2244	.4261	2.1951		
C block 5	.4754	1.2386	.8977	1.5578	3.0303	
C block 6	.4470	1.3097	.7557	.7254	.9763	2.6894

Correlation Matrix

	C block 1	C block 2	C block 3	C block 4	C block 5	C block 6
C block 1	1.0000					
C block 2	.1506	1.0000				
C block 3	.3725	.5566	1.0000			
C block 4	.2859	.4637	.2555	1.0000		
C block 5	.2457	.3993	.4581	.6040	1.0000	
C block 6	.2453	.4481	.4094	.2985	.3420	1.0000

	Mean	Minimum	Maximum	Range	Max/Min	Variance
Item Means	3.6061	3.3030	3.8788	.5758	1.1743	.0382
Item Variances	2.2655	1.2348	3.1761	1.9413	2.5721	.7316
Inter-item Covariance	.8257	.2983	1.5578	1.2595	5.2222	.1508
Inter-item Correlations	.3690	.1506	.6040	.4534	4.0100	.0152

RELIABILITY COEFFICIENTS - 6 items

Alpha = .7748
Standardized item alpha = .7782

Table 2

Means and Standard Deviations

Variable	M	SD
Age	8.39	2.37
Attention Problems Scale[a]	69.00	10.80
Omission Errors[b]	12.59	11.18
Commission Errors[b]	60.10	17.21

[a]T Score [b]Percent of All Trials

Table 3

Pearson Correlation Matrix

	Age	Attention Problems Scale	Omission Errors	Commission Errors
Age	--	.438*	-.446**	-.460**
Attention Problems Scale		--	-.108	-.262
Omission Errors			--	.029
Commission Errors				--

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Figure 1

Stepwise Multiple Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.438[a]	.192	.166	9.8661

a. Predictors: (Constant), AGE

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	716.488	1	716.488	7.361	.011[a]
	Residual	3017.512	31	97.339		
	Total	3734.000	32			

a. Predictors: (Constant), AGE

b. Dependent Variable: CBCL_6

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	52.247	6.409		8.152	.000		
	AGE	1.996	.736	.438	2.713	.011	1.000	1.000

a. Dependent Variable: CBCL_6

Excluded Variables[b]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	O_PRCNT	.110[a]	.602	.552	.109	.801	1.248	.801
	C_PRCNT	-.077[a]	-.416	.680	-.076	.788	1.269	.788

a. Predictors in the Model: (Constant), AGE

b. Dependent Variable: CBCL_6

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions	
				(Constant)	AGE
1	1	1.963	1.000	.02	.02
	2	3.657E-02	7.327	.98	.98

a. Dependent Variable: CBCL_6

Discussion

The results of this study do not denote a significant relationship between Conners' Continuous Performance Test and the Attention Problems scale of the Child Behavior Checklist. In fact, data analysis revealed age to be a more likely predictor of the Attention Problems scale. This finding is congruent with the idea that as children grow older and begin to attend and progress through school, more demands are placed on them with regard to attention and behavior.

Furthermore, it is a likely conclusion that the intangible constructs that make up ADHD cannot be distinguished by one measure alone. Clinicians who use the CPT or CBCL to screen for ADHD are advised to provide a more thorough evaluation instead.

One limitation of this study is the small, clinic-referred sample. Consequently, generalizations to other groups should not be made. Also a limitation, there is very little information regarding the reliability of Conners' Continuous Performance Test. Further research is needed to address the issue.

In conclusion, ADHD is one of the most common diagnoses as well as one of the most researched disorders of all time. If for no other reason than that 3-5% of school age children are affected by ADHD, additional research focused on the identification of the underlying constructs of inattention and impulsivity is indicated.

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APPENDIX A

LITERATURE REVIEW

From "Minimal Brain Damage" to "Minimal Brain Dysfunction" to "Hyperkinetic Impulse Disorder" to "Hyperactive Child Syndrome" to "Hyperkinetic Reaction Of Childhood" to "Attention-Deficit Disorder," the disorder officially termed "Attention-Deficit/Hyperactivity Disorder" (ADHD) in 1987 has been noted since before the turn of the century. Literary references to individuals having serious problems with inattention, hyperactivity, and poor impulse control have been with us for some time. Dr. Heinrich Hoffmann, in 1844, wrote two poems: "The Story of Fidgety Philip" and "The Story of Johnny Head-In-Air" (see Appendix C). It is widely believed that the former is one of the first known descriptions of ADHD, Predominantly Hyperactive-Impulsive Type, and the latter is a description of ADHD, Predominantly Inattentive Type (according to DSM-IV subtype classification).

"In 1902, Dr. George F. Still said that children he had treated who were impulsive, hyperactive, inattentive, and trouble-makers were suffering from defects in moral control, and he attributed their problems to organic disorders of the brain" (Bain, 1991, p. 42). Following an outbreak of encephalitis in America in 1917-18, interest in attention studies reignited. Survivors exhibited many behavioral problems resembling those seen today in ADHD. "These cases and others known to have arisen from birth trauma, head injury, toxin exposure, and infections gave rise to the concept of a brain-injured child syndrome. The concept of a brain-injured child syndrome in the absence of evidence of brain

injury would later evolve into that of 'Minimal Brain Damage,' and later, into that of 'Minimal Brain Dysfunction' (MBD)" (Barkley, 1997, p. 5).

In the 1950s and 1960s, some focused on the hyperactivity component, "...labeling the condition as 'Hyperkinetic Impulse Disorder' and attributing it to cortical overstimulation due to poor thalamic filtering of stimuli entering the brain" (Barkley, 1997, p. 5). This provided a more descriptive diagnostic label that evolved into "Hyperactive Child Syndrome." However, researchers continued to believe the condition originated as a result of neurological dysfunction.

The influence of psychoanalytic thought was evidenced when the second edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-II; American Psychiatric Association, 1968) labeled the condition "Hyperkinetic Reaction of Childhood." This echoed the "belief that children's mental disorders necessarily arose as a reaction to various environmental factors, particularly early events in the family life of a child" (Barkley, 1997, p. 5).

In the 1970s, research emphasized the magnitude of problems with sustained attention and impulse control in addition to hyperactivity in grasping the nature of the disorder. Douglas (1972) postulated that there were four key components to the disorder: maintaining attention and effort, controlling impulsive behavior, regulating arousal levels, and a propensity to solicit immediate reinforcement. Douglas' and others' studies contributed to the renaming of the disorder in 1980 to "Attention-Deficit Disorder." Barkley (1997) writes, "No longer was the disorder viewed as simply a behavioral reaction of childhood. Instead, the cognitive and developmental nature of the disorder was emphasized and

more explicit criteria for defining and diagnosing the condition were now provided" (p. 7).

Furthermore, two types of ADD were identified in the DSM-III (American Psychiatric Association, 1980): with and without hyperactivity. Until this time there had not been a great deal of research on the disorder without hyperactivity. This distinction in official diagnostic criteria led to increased research and eventually to the opinion that ADD without hyperactivity is a disorder that stands alone.

Shortly after the "Attention-Deficit Disorder" label was given, controversy surfaced regarding the exclusion of "hyperactivity" in the name. Because hyperactivity and impulse control were considered to be crucial features to differential diagnosis, some believed the symptoms should be included in the name. In 1987, with the release of the DSM-III-R (American Psychiatric Association, 1987), the disorder was renamed "Attention-Deficit/Hyperactivity Disorder." Undifferentiated Attention Deficit Disorder, ADD without hyperactivity, was listed separately in another section of the manual without diagnostic criteria attributed to a lack of research (Barkley, 1997).

The 1980s brought challenges to the idea that ADHD was an attention disorder. Barkley (1997) reports a shift in focus to motivation and reinforcement. Studies concluded that children with ADHD resisted rules when they conflicted with opportunity for immediate reinforcement. That is, children with ADHD would choose to ignore and disobey rules more than normal children if competing behavior was immediately reinforced.

"Over the next decade, researchers employing information-processing paradigms to study ADHD had a difficult time demonstrating that the problems these children had with attending to tasks were actually attentional in nature" (Barkley, 1997, p. 8). Studies involved response inhibition and motor system control. The recognition that hyperactivity and impulsivity were the main facet of the disorder led to two separate symptom lists in the DSM-IV (American Psychiatric Association, 1994). One list specifies behavior consistent with inattention, and the other details behavior consistent with hyperactivity-impulsivity. At present, three subtypes are permitted according to the DSM-IV: ADHD, Predominantly Inattentive Type; ADHD, Predominantly Hyperactive-Impulsive Type; and ADHD, Combined Type which indicates problems with inattention and hyperactivity-impulsivity.

According to the DSM-IV (American Psychiatric Association, 1994), "The essential feature of Attention-Deficit/Hyperactivity Disorder is a persistent pattern of inattention and/or hyperactivity-impulsivity that is more frequent and severe than is typically observed in individuals at a comparable level of development (Criterion A). Some hyperactive-impulsive or inattentive symptoms that cause impairment must have been present before age 7 years, although many individuals are diagnosed after the symptoms have been present for a number of years (Criterion B). Some impairment from the symptoms must be present in at least two settings (e.g. at home and at school or work) (Criterion C). There must be clear evidence of interference with developmentally appropriate social, academic, or occupational functioning (Criterion D). The disturbance does not

occur exclusively during the course of a Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder and is not better accounted for by another mental disorder (e.g. a Mood Disorder, Anxiety Disorder, Dissociative Disorder, or Personality Disorder) (Criterion E)" (p. 78).

ADHD is one of the most common Axis I childhood disorders, occurring in as many as 3-5% of children (American Psychiatric Association, 1994). The disorder is often overlooked during preschool years as inattention, hyperactivity-impulsivity is attributed to "normal" toddler behavior. Nevertheless, when children enter school, the demands for their attention and the expectation that they follow classroom rules often bring the disorder to the forefront. As a result, ADHD is most commonly diagnosed in the first years of elementary school (Goldman, Genel, Bezman, & Slanetz, 1998). Furthermore males are much more likely to be diagnosed. Male-to-female rations range from 4:1 to 9:1, depending on the setting (American Psychiatric Association, 1994). ADHD occurs in diverse cultures, with differences in reported prevalence among Western countries being attributed to different diagnostic practices rather than from differences in clinical presentation (American Psychiatric Association, 1994).

"In the majority of cases seen in clinical settings, the disorder is relatively stable through early adolescence. In most individuals, symptoms attenuate during late adolescence and adulthood, although a minority experience the full complement of symptoms of Attention-Deficit/Hyperactivity Disorder into mid-adulthood" (American Psychiatric Association, 1994, p. 82).

The etiology of ADHD is unknown. "Various theories attribute hyperactivity to a dysfunction of the brain or central nervous system (such as underarousal of the central nervous system), delayed maturation of the central nervous system, genetic variation, metabolic disturbance, emotional disturbance, or an allergic reaction to certain foods, such as those containing artificial coloring and food additives. These factors may occur either alone or in combination. Although brain impairment or dysfunction is a possible etiologic factor, studies indicate that there is no clear correspondence between traditional signs of brain damage (for example, loss of coordination, ataxia, paralysis, or reflex abnormalities) and the attention-deficit hyperactivity disorder" (Sattler, 1992, pp. 617-618).

According to KidsHealth.org (The Nemours Foundation, 1998), "Certain risk factors seem to put children at greater risk for ADHD. However, no one has shown that they directly cause ADHD. These risk factors are:

- family history of ADHD
- family history of alcoholism
- antisocial male relatives
- female relatives that have Briquet's syndrome (hysteria/imagined illness)
- living in poverty
- being male
- severe problems in family relationships; divorce
- child abuse or neglect

- mental retardation
- conduct disorders
- low birth weight
- some type of brain injury."

ADHD has been linked with a number of comorbid psychiatric conditions including conduct disorder, oppositional defiant disorder, mood disorders, anxiety disorders, and learning disorders (Bain, 1991). As many as one-half to two-thirds of clinic-referred ADHD children carry at least one additional psychiatric diagnosis (Ingersoll & Goldstein, 1993).

"Despite an enormous body of research into this disorder, various aspects of ADHD have generated controversy over the years. ... Debate has centered on the appropriate assessment and 'labeling' of children: there have been allegations that the diagnosis is merely applied to control children who exhibit unwanted behaviors in the classroom or elsewhere and that medication is simply used to control such behavior. Along similar lines, concerns have been expressed about whether thorough enough evaluations are being performed by physicians prior to prescribing medication" (Goldman, Genel, Bezman, & Slanetz, 1998, p. 1100).

This debate spans the pages of professional journals as well as popular press magazines. Rogers (1998) in Newsweek writes, "...diagnosing the disorder calls for artful – and sometimes inexact – psychology" (p. 60). Likewise, skepticism is seen in Phi Delta Kappan, "Is attention deficit disorder becoming a desired diagnosis?" (Smelter, Rasch, Fleming, Nazos, & Baranowski, 1996, pp.

429-433); in Education, "ADHD – diagnostic decoy" (Daly, 1996, pp. 285-286) and "Attention-deficit hyperactivity disorder: mountain or a mole hill?" (Calhoun, Greenwell-Iorillo, & Chung, 1997, pp. 244-251); in American Health, "Fad or disorder? (Attention Deficit Hyperactivity Disorder)" (Bromfield, 1996, p. 32); and in a November 30, 1998, Time cover story, "There is no definitive medical test for ADHD; that's part of the problem." Vatz and Weinberg (1997) address the issue in their article titled, "How accurate is media coverage of attention deficit disorder?" in which they say, "ADD has become a 'fad disorder,' difficult to diagnose and more difficult to disconfirm..." (p. 76).

Although some still question the mere existence of the disorder, a great many who believe there is such a disorder agree that diagnosis is, at best, less than scientific. There is no single assessment or method of measurement for the disorder. Instead, there is a substantial degree of conflict over how to evaluate for this disorder (Fisher & Beckley, 1999). However, the accuracy of diagnosis is imperative for the design of effective treatment (Ludwikowski & DeValk, 1998). Clinicians often have difficulty in obtaining an objective impression of a child's inattention, hyperactivity, or impulsive behaviors during a clinical interview. Because symptoms may be situation specific, the clinician must rely on the report given by parents and teachers.

The majority of sources recommend a thorough evaluation by a qualified professional – psychologist, psychiatrist, or physician – that accumulates information about the patient's history, family history, school and home behavior, intelligence, academic achievement, emotional adjustment, peer relations,

parental child-rearing practices, medical history and evaluation, and gathers syndrome-specific information as well. Kronenberger and Meyer recommend a sample assessment battery (see Figure 2).

Clinicians today are interested in finding a way to make diagnosis more accurate, objective, and timely. It appears, however, that a screening instrument or a single assessment measure should not replace a thorough evaluation.

Figure 2

Recommended Assessment Battery
(Kronenberger & Meyer, 1996, p. 49)

COGNITIVE :	Wechsler IQ Test (WPPSI-R or WISC-III), Woodcock-Johnson Achievement Test-Revised (WJ-R) or Wechsler Individual Achievement Test (WIAT), and California Verbal Learning Test for Children
BEHAVIORAL:	Child Behavior Checklist (CBCL) Conners' Parent Rating Scale (CPRS-48) Teacher's Report Form (TRF) Conner's Teacher Rating Scale (CTRS-28)
SYNDROME-SPECIFIC:	Continuous performance test ADHD Rating Scale (Parent and Teacher) Home Situations Questionnaire School Situations Questionnaire

APPENDIX B

THESIS BIBLIOGRAPHY

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APPENDIX C

POEMS BY HEINRICH HOFFMANN

THE STORY OF FIDGETY PHILIP
Heinrich Hoffmann

'Let me see if Philip can
Be a little gentleman;
Let me see if he is able
To sit still for once at table':
Thus Papa bade Phil behave;
And Mamma looked very grave.
But fidgety Phil,
He won't sit still;
He wriggles,
And giggles,
And then, I declare,
Swings backwards and forwards,
And tilts up his chair,
Just like any rocking-horse—
'Philip! I am getting cross!'

See the naughty, restless child
Growing still more rude and wild,
Till his chair falls over quite.
Philip screams with all his might,
Catches at the cloth, but then
That makes matters worse again.
Down upon ground they fall,
Glasses, plates, knives, forks, and all.
How Mamma did fret and frown,
When she saw them tumbling down!
And Papa made such a face!
Philip is in sad disgrace.

Where is Philip, where is he?
Fairly covered up you see!
Cloth and all are lying on him;
He has pulled down all upon him.
What a terrible to-do!
Dishes, glasses, snapped in two!
Here a knife, and there a fork!
Philip, this is cruel work.
Table all so bare, and ah!
Poor Papa, and poor Mamma
Look quite cross, and wonder how
They shall have their dinner now.

THE STORY OF JOHNNY HEAD-IN-AIR
Heinrich Hoffman

As he trudged along to school,
It was always Johnny's rule
To be looking at the sky
And the clouds that floated by;
But what just before him lay,
In his way,
Johnny never thought about;
So that evening cried out
'Look at little Johnny there,
Little Johnny Head-in-air!'

Running just in Johnny's way
Came a little dog one day;
Johnny's eyes were still astray
Up on high,
In the sky;
And he never heard them cry
'Johnny, mind, the dog is nigh!'
Bump!
Dump!
Down they fell, with such a thump,
Dog and Johnny in a lump!

Once, with head as high as ever,
Johnny walked beside the river.
Johnny watched the swallows trying
Which was cleverest at flying.
Oh! what fun!
Johnny watched the bright round sun
Going in and coming out;
This was all he thought about.
So he strode on, only think!
To the river's very brink,
Where the bank was high and steep,
And the water very deep;
And the fishes, in a row,
Stared to see him coming so.

One step more! oh! sad to tell!
Headlong in poor Johnny fell.
And the fishes, in dismay,
Wagged their tails and swam away.

There lay Johnny on his face,
With his nice red writing-case;
But, as they were passing by,
Two strong men had heard him cry;
And, with sticks, these two strong men
Hooked poor Johnny out again.

Oh! you should have seen him shiver
When they pulled him from the river.
He was in a sorry plight,
Dripping wet, and such a fright!
Wet all over, everywhere,
Clothes, and arms, and face, and hair:
Johnny never will forget
What it is to be so wet.

And the fishes, one, two, three,
Are come back again, you see;
Up they came the moment after,
To enjoy the fun and laughter.
Each popped out his little head,
And, to tease poor Johnny, said
'Silly little Johnny, look,
You have lost your writing-book!'