*International Journal of Special Education*
*2004, Vol 19, No.2.*

# ATTENTION DEFICIT HYPERACTIVITY DISORDER AND RATING SCALES WITH A BRIEF REVIEW OF THE *CONNORS TEACHER RATING SCALE* (1998)

**Matthew Cordes**
and
**T. F. McLaughlin**
*Gonzaga University*

*This paper explores the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994) definition of Attention Deficit Hyperactivity Disorder) (ADHD). The use of rating scales to diagnose ADHD was evaluated. Rating scales have been used since the 1970's and are highly influential in the detection of ADHD today. We also examined the advantages and disadvantages of using rating scales. Rating scales seem to change the percentage of individuals who meet the criteria for a diagnosis of ADHD based on different age groups, gender, and ethnicity. Finally, the Conners Teacher Rating Scale (CTRS-R) (Conners, Sitarenios, Parker, & Epstein, 1998) was reviewed. The important changes in the revision of the Conners Teacher Rating Scale-Revised ( CTRS-R) were detailed. The use of the CTRS-R is recommended as part of a multi-faceted assessment to diagnose and evaluate treatment procedures for children and adolescents with ADHD.*

The original *Conners' Teacher Rating Scale* (1968)was a 39-item rating scale used to determine the teacher's view of a child's behavior in the classroom (Conners, 1969). This scale was recently revised (CTRS-R) in 1998 (Conners, Sitarenios, Parker, & Epstein, 1998) and resulted in a 28-item scale. The revision of the original Conners' Teacher Rating Scale was shortened to accommodate the administrator of the test so that the information would be more easily gathered. It has also changed from a 3 to 4 point Likert scale. This scale ranges from 0, not at all true, to 3, very true (Conners et al., 1998). 18 of the items on the CTRS-R were written to mirror closely the DSM-IV criteria for ADHD. The rest of the items came from various tests such as the previous Conners' which have been shown to have clinical utility (Brown, 1985; Satin, Winsberg, Monetti, Sverd, & Foss, 1985; Stein & O'Donnell, 1985) and reliability (Conners, 1969; Edelbrock, Greenbaum, & Conover, 1985; Epstein & Nieminen, 1983; Roberts, Milich, Loney, & Caputo, 1981; Zentall & Barack, 1979). There are also shortened versions of the original CTRS such as the *IOWA Conners* (Pelham, Milich, Murphy, & Murphy, 1989) and *Abbreviated Symptom Questionnaire* (Sprague & Sleator, 1973). These shorter versions are also very popular with teacher because of the brevity of time needed to complete the scale.

In recent years the one of the most common reasons for referral to mental health practitioners in

the United States has been the parents' concern regarding their child and Attention Deficit /Hyperactivity (ADHD). ADHD is one of the most prevalent childhood psychiatric disorders (Barkley, 1998; Hundhammer & McLaughlin, 2002). Around 19% of the American school children have some type of behavior problem. Half of these children have either a hyperactivity or inattention problem (Smucker, 2001). Thus ADHD has a high incidence of occurring with other problems (National Institute of Health, 2001). According to the Surgeon General's report, 3-5% of American school children have ADHD (American Psychiatric Association, 2000). Earlier estimates have said that 1-20% of the population has ADHD (Barkley, 1998). This disorder is diagnosed in boys more then girls in ratios ranging from 4:1 to 9:1. This difference is based on where sample is taken, whether clinical or community based (Reid, 2001). A formal definition of ADHD follows:

> *ADHD refers to a family of related chronic neurobiological disorders that interfere with an individual's capacity to regulate activity level (hyperactivity), inhibit behavior (impulsivity), and attend to tasks (inattention) in developmentally appropriate ways* (National Institute of Health, 2003).

The three main characteristics of ADHD are hyperactivity, impulsivity, and inattention. Children with ADHD have shown to score an average of 7 to 15 points below the control groups on standardized intelligence tests (Faraone et al., 1993; Fischer, Barkley, Fletcher, & Smallish, 1990; McGee Williams, Moffitt, & Anderson,1989; Prior, Leonard, &Wood, 1983; Tarver-Behring, Barkley & Karlsson, 1985; Werry, Elkind, & Reeves, 1987). The reason for this difference is not clear, and it has been speculated that this may be the result of the test taking behaviors found in children with ADHD. The inattentive response of children with ADHD could lead to answers which were given in haste and therefore wrong (Barkley, 1998). Some studies have shown that the relationship between low test scores and ADHD comes from learning disabilities (LD) found in the children with ADHD (Bohline, 1985). However in a study carried out by Barkley et al.,found that children with ADHD/LD had higher test scores then children diagnosed with only LD (Barkley, 1990).

Children with ADHD have shown intelligence quotients from mildly mentally intellectually retarded to gifted. Besides scoring lower on intelligence testing, children with ADHD have shown some difficulty in the classroom. Children with ADHD normally have trouble in two areas: academic performance and achievement. Most children referred to clinics are performing well below their known levels of abilities (Barkley,1998). Evidence supports that medication will help some school children with academic productivity and accuracy (Barkley, 1977; Pelham, Bender, Caddell, Booth, & Moorer, 1985; Rapport, DuPaul, Stoner, & Jones, 1986). Even with medication, students are still showing below average performances on standardized tests compared to their peers by as much as 10 to 30 points in a multitude of various subject areas; reading, spelling, math, and reading comprehension (Barkley, DuPaul, & McMurray, 1990; Brook & Knapp, 1996; Cantwell & Satterfield, 1978; Casey, Rourke, & Del Dotto, 1996; Dykman & Ackerman, 1992; Fischer et al., 1990; Semrud-Clikeman et al., 1992).

56% of children with ADHD require tutoring, 30% are forced to repeat a grade, and 30-40% must be placed in special education program (Barkley,1998). As many as 46% of ADHD children may be suspended from school and 10 to 35% may drop out of high school (Barkley, Fischer et al., 1990; Barkley DuPaul & McMurray, 1990; Brown & Borden, 1986; Faraone et al., 1993; Munir, Biedermen, & Knee, 1987; Stewart et al., 1966; Szatmari, Offord, & Boyle, 1989; Weiss & Hechtmen, 1993). Some children with ADHD show social deficits. As adolescents they are more likely for motor vehicle accidents, tobacco use and teenage pregnancy (National Institute of Health, 2003). ADHD is a serious disorder and a reliable way to diagnose needs to be developed.

*DSM-IV and ADHD*

The most commonly used diagnostic criteria used in the United State are the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV; American Psychiatric Association, 1994) and the *International Classification of Diseases*. This test is very similar to the DSM-IV and is used internationally (ICD-10; World Health Organization, 1994). According to Barkley, (1998) the DSM-IV are some of the most rigorous and empirically derived criteria ever created in the history of clinical diagnosis for this disorder. This version of the DSM was based on items used in rating scales that have a high intercorrelation to each other and are valid in distinguishing ADHD from other groups of children (Spitzer et al., 1990). The DSM-IV criterion has different symptoms for inattention and hyperactivity. Dividing the criteria into these categories allows diagnoses of ADHD and ADD in one set of criteria (Barkley, 1998). All of the symptoms must be present for at least 6 months and must reach at least six of the nine criteria in the category (American Psychiatric Association, 1994). The other conditions which must be present for diagnosis of ADHD is that must appear before age seven, must be present in two or more settings, there must be clear evidence of clinically significant impairment in social, academic, or occupational function, and symptoms do not occur during the course of another psychotic disorder, and lastly are not better accounted for by another mental disorder (American Psychiatric Association, 1994).

One of the problems with the DSM-IV is its treatment of ADHD- predominantly inattentive (PI). The main difference between ADHD-PI and ADHD-combined (C) is that ADHD-PI's main problems come with focused/selective attention and sluggish information processing, whereas the ADHD-C focuses on the problem of persistent effort and distractibility (Barkley, 1998). This would mean that ADD and ADHD will be classified as different disorders and the rating scales accompany each will have to change. However, there has not been enough research on this topic to make a definite separation of the two (Barkley, 1998).

A second important concern is the appropriateness of the items for different developmental periods (Barkley, 1998). This was not the case for inattention. Harts' recent research showed that inattention remained stable from middle childhood to adolescence (Hart et al., 1995). Thereafter, hyperactivity has been shown to decline as ADHD children reach adolescence (Barkley, 1998). Although the hyperactivity level of those with ADHD statistically declines as they get older, Barkley's findings show that many ADHD children still show signs of hyperactivity even though they don't qualify for the diagnosis. Therefore this apparent decline in the percent of those diagnosed is not in correlation with the decline in the severity of symptoms used in the criteria (Barkley, Fischer, Edelbrock, & Smallish, 1990; Fischer, Barkley, Edelbrock, & Smallish, 1993). In Fischer's study, little difference was found in the measure of the impairment between those no longer meeting diagnostic criteria for ADHD and those still doing so (Fisher et al., 1990).

All reliable ratings in the United States are based on the DSM-IV. However this is not the case with other nations. In Germany researchers using the DSM-IV found that 17.8% of the children had ADHD (Baumgaertel et al., 1995). This is not just the case with Germany, many countries have an inflated rate of ADHD using the DSM-IV criteria (Rohde, 2002). This is a very important statistic when over 1/3 of the American school population is from another culture, with Hispanics being the largest (Reid, 1995). This research is something that rating scales need to consider when trying to meet the criteria for DSM-IV.

*Rating Scales*

The use of rating scales has always been one of the major ways of diagnosing a person with

> ADHD (Barkely 1998; DuPaul & Stoner, 1994). Rating scales have become one of the essential elements in the evaluation and diagnosis of children with behavior problems (Barkley, 1998).
>
> *Clinicians and researchers consider the use of reliable and valid teacher-completed rating scales as standard practice for the diagnosis and treatment of attention deficit/hyperactivity disorder (*ADHD*)* (American Academy of Child and Adolescent Psychiatry, 1997; American Academy of Pediatrics, 2000), (Mattison, Gadow, Sprafkin, Nolan, Schneider, 2003).

The rating scale first began to affect the diagnosis of ADHD with the Conners' Teacher Rating Scale (CTRS) in 1969 (Conners, 1969,1973).(Gumpel, Wilson, Shalev, 1998). From the early 1970's on, there has been a professional preference for the rating scale (Gumpel, Wilson, Shalev, 1998). Before the last decade it has been accepted that the expression, course, and outcome of psychological disorders were largely universal and independent of each other (Marsella & Kameoka, 1989). This is another reason that rating scales were so heavily depended on without question (Reid, Casat, Norton, Anastopoulos, & Temple, 2001).

Parental ratings have also been shown to be reliable and full of good information (Glascoe & Dworkin, 1995). Glascoe & Dworkin state that the accuracy of information from parent ratings helps clinical diagnosis of ADHD. Recent studies have shown that correctly interpreted parental concern expressed on rating scales can be just as accurate as developmental-behavioral screening tests when trying to detect children with disabilities (e.g., Diamond, 1987; Glascoe, 1997a,1997b, 2000; Glascoe, Altemeier, & MacLean, 1989; Mulhern, Dworkin, &Bernstein, 1994; Thompson & Thompson, 1991; Young, Davis, Schoen, & Parker,1998). In another study by Glascoe and colleagues, it was found that using the Parents' Evaluation of Developmental Status (PEDS) expresses a high sensitivity with certain parents concerns (e.g., motor, language, global cognitive, academic) when identifying disabilities with children four years and older (Glascoe, 1991, 1994,1997a, 1997b, 2000; Glascoe et al., 1989; Glascoe & MacLean, 1990; Glascoe, MacLean, & Stone, 1991). The opposite was found to be true, the rating scale shows that parents of children without disabilities do not have the previously expressed concerns (Dewey, Crawford, & Kaplan, 2003). Obviously, rating scales are a useful way of presenting questions to parents to receive information. In a study done by Mash and Terdal, it was reported that parents are an important source of information. They are familiar with the child's history and current situation, and have the cognitive skills that enable them to recognize and describe their child's psychopathology and learning difficulties (Mash & Terdal, 1997). Parents can identify the strengths and weaknesses of the child that may not be assessed by standard psychometric testing (Dewey et al. 2000).

Teacher rating scales are also an important part of the evaluation and diagnosis of ADHD (Miller, Koplewicz, & Klein,1997). Teacher rating scales provide necessary information about the child in the school setting. The teacher also becomes a secondary informant who can judge the behavior of the child in the context of his peers (Matson, 1993). Teacher rating scales on average are more reliable then parent rating scales and tend to be more sensitive to hyperactive behaviors (Barkley, 1981). All ratings scales have some problem with reliability and validity; however, when combining multiple aspects of evaluation, ratings scales are proven to be a useful tool in establishing the presence of symptoms, their onset and duration, pervasiveness, and their statistical deviance compared to a normal child of the same age (Barkley, 1981).

Rating scales are a valuable tool in the assessment of ADHD; however, there are many factors that can affect the reliability and quality of a rating scale (Parker, 1992). Many of the most

commonly used rating scales have similar factors that make them effective. For example, they offer a quick and easy format, standardized sets of behaviors to insure that specific behaviors are being assessed, are economical in terms of cost and time, and reduce rater bias and subjectivity by using standardized presentation of questions. They also provide a means of evaluating frequency and severity of behaviors with age and gender specific norms to compare to and can be given to both parents and teachers (showing the problem in multiple settings required by DSM-IV). Normative samples include children form different socioeconomic and racial and ethnic populations, and are multifactorial (Lerner J., Lowenthal, & Lerner, S.1995).

A major concern with rating scales is that they are thought to be gender biased. There have been numerous studies completed which show that girls differ from boys in the rate of ADHD (Arnold, 1996; Gaub, & Carlson, 1997b). However, the DSM-IV does not take gender into account when putting out its criteria (Collett, Ohan, Myers, 2003). Unfortunately, this may mean that the DSM-IV may not be demonstrated as accurately in females as it is in males (Ohan & Johnston, 1999; Quinn & Nadeau, 2002). This issue leads to the subsequent misdiagnosis of females.

Another valid concern with rating scales is that they were created for elementary age school children and did not account for children under age four or adults (Collett, Ohan, Myers, 2003; Hundhammer & McLaughlin, 2002). Barkley specifically makes note of this by saying: *the appropriateness of the item set for developmental period* (Barkley, 1998). This concern is specifically addressed in terms of adults who display impulsivity and some aspects of hyperactivity, but don't quite meet the criteria for hyperactivity (Barkley, 1998). There has been very little research done in the area of adulthood ADHD and how the DSM-IV criterion conforms to college students in the United States (DuPaul, Schaughency, Weyandt, Tripp, Kiesner, Ota, & Stanish, 2001). Adults rely heavily on self-reported scales diagnosis with ADHD (Dulcan, 1997; Jackson & Farrugia, 1997). Heiligenstein et al., (1998) performed a study using 448 university students that showed 4% of the participants had ADHD; this was found by using DSM-IV criteria. However, when Heiligenstein et al., performed a similar study with self-rating scales, the percent of people who qualified for ADHD rose up to 11% (Heiligenstein et al., 1998). Therefore, Heiligenstein et al., (1998) decided that rating scale criteria brought forth by the DSM-IV is too high when applied to universities. Various researchers believe that students will underscore themselves on the tests; as a result of academic underachievement associated with ADHD will not be represented on the test (Javorsky & Gussin, 1994; Richard, 1995). A few studies regarding ADHD children into adulthood have been completed; however, this is an area that needs more extensive research (Barkley, 1998).

The final major concern with rating scales is its correspondence to different ethnic groups. In the past, it was believed that expression, course, and outcome of psychological disorders were largely universal and was not effected by ethnicity (Marsella & Kameoka, 1989). Now researchers say that cultural bias is an issue with ADHD testing (Reid, 1988). Thus, the creditability of behavior rating scales to culturally or ethnically diverse people has been questioned (Reid, Casat, Norton, Anastopoulos, & Temple, 2001). With the increase of minority groups, which in some states equal half of the student population, the need of a scale that has stability through ethnicity is becoming more a prevalent issue (American Council on Education, 1988; Quality Education for Minorities Project, 1990). These are the main concerns regarding ADHD rating scales. More problems are being discovered facing rating scales but ethnic inclusion, gender bias and early childhood and adult ratings, are three legitimate concerns.
Barkley (1981) stated the following criteria for rating scales: the scales should be worded so that

The majority of adults can understand them, the scale should have enough items to assess constructs under the study but not so many that it is overly time consuming, and the answer format should have the degree of problem being endorsed instead of only *yes* or *no* answers. Furthermore, the test should focus more on the construct being tested, it should have construct validity which tries to correlate the symptoms of ADHD with the questions being asked, and it should also be similar to other useful measures in the field in the manner of criteria and outcomes. The rating scale should also be reliable for all individuals tested, and two different raters should be provided for each child, and the scale norms should include a large age range. Although it is not specifically mentioned, the normative group should include people from different parts of the country, several of those with various socioeconomic backgrounds, a range of ethnicity, and a number of individuals from both rural/ city surroundings (Reid, Casat, Norton, Anastopoulos, & Temple, 2001). Finally they should provide some information on planning interventions after the completion of the test, the majority of the scales do not include this aspect. (Barkley, 1981).

*The Conners' Teacher Rating Scale (CTRS and CTRS-R)*

The Conner's Teacher Rating Scale (CTRS) is one of the three most popular rating scales used by professionals today for teacher rating scales to diagnose ADHD (Barkley, 2003. The CTRS consists of either 39 or 28 questions and addresses four factors: conduct problem, hyperactivity, inattentive-passive, and hyperactivity index (Parker, 1992). Although the scale has been used for over thirty years, it retains its professional appeal and has remained stable (Gumpel, Wilson, & Shalev, 1998). This scale covers children from ages 3 to 17. The CTRS-R has been shown to be an adequate scale for preschooler's both in middle to upper classes, and in both predominantly white schools and in lower socioeconomic mainly African American schools (Miller, Koplewicz, &Klein, 1997; Fantuzzo, Grim, Mordell, McDermott et al., 2001).

Some studies have shown that age had an effect on the percent of people diagnosed with ADHD; stating that children are diagnosed more then adolescence (Rowe & Rowe, 1997). Some also argue that the CTRS focuses only on the negative aspects of the child (Achenbach, 1991; Achenbach & Edelbrock, 1983; Atkins et al., 1985; Lambert et al., 1990; O'Leary & Steen, 1982; Pelham et al., 1992; Quay & Peterson, 1983; Rutter, 1967; Shaywitz et al., 1986; Ullmann et al., 1985a). This can create a bias with the tester and increase the searching for a pathology instead of accurately recording the given information regarding true diagnosis (Rowe & Rowe, 1992). Originally the CTRS was developed as way to screen and test behavior problems when children took medication, this means that the scale is sensitive to medication. The CTRS is useful with a dual function for assessing psychosocial and drug treatment problems with children that have behavior problems (Horn, Ialongo, Popovich, & Peradotto, 1987; Fischer & Newby, 1991). CTRS does show some test-retest reliability (i.e., test a child twice to see if the same conclusions come from the data). This was shown by coming up with similar findings when retesting children (Glow, Glow, & Rump, 1982). One of the major problems with the CTRS is that the norming group is quite small and from one section of the country, and a new larger group needs be tested from all over the country so that the scale can be kept up to date ( Conners, Sitarenios, Parker, & Epstein, 1998).

The newest version of the CTRS has a greater focus on ADHD-related behavior and relevance regarding the questions asked. The CTRS-R (1998) has more discriminatory status toward detecting ADHD then the previous version (Conners, et al., 1998). An additional finding from the Conners at al., (1998) was the scale should not be used alone, but instead, other diagnostic tests should be employed. The CTRS however seems to detect ADHD in more African American children then in white children (Conners et al., 1998; Langsdorf et al., 1979; Waechter et al.,

1979). More in-depth research regarding race found that an antisocial factor is found more in African American males and a socially inferior factor is found more in white females. The one study on the difference between teacher bias and the theory of a races acting showed differently the presence of teacher bias when examining white and Asian children (Sonuga, Burke, Minocha, Taylor, & Sandberg, 1993.). The final consideration was that when using the CTRS, the rater should take racial factors into account and to not only use the CTRS as the only diagnostic tool for detecting ADHD ( *Epstein*, *March Conners*, *Jackson*, 1998). In conclusion, the CTRS is a very reliable and prestigious scale, but the tester must be aware of some of the shortcomings of the scale. Rating scales are, and will continue, to be used as major diagnostic tool for the detection of ADHD school children for the foreseeable future. The rating scale is a device that most people can easily use and generalize to various subjects. The rating sale is a very quick way to gather information from the most important sources. Furthermore, rating scales show that the behaviors are occurring in more then one setting. In addition, the scales allow for parents to provide information about their child in a clear and succinct way. The rating scale does have it problems such as gender, race, and age bias; however, these are things that will eventually improve and change with further revisions. One also has to consider that a truly universal and inclusive scale is nearly impossible to create. Most importantly, the rating scale has become one of the most useful diagnostic tools for detecting ADHD.

## References

Achenbach, T.M. (1991). *Child behavior checklist for ages 4-18*. Burlington: University of Vermont.

Achenbach, T.M., & Edelbrook, C. (1983). *Manual for the Child Behavior Checklist and Revised Child Behavior Profile*. Burlington, VT: University of Vermont, Department of Psychiatry.

American Academy of Child and Adolescent Psychiatry. (1997). Practice parameters for the assessment and treatment of children, adolescents, and adults with attention-deficit/hyperactivity disorder. *Journal of the American Academy of Child and Adolescent Psychiatry,* 36, 85-121.

American Academy of Pediatrics. (2000). Clinical practice guideline: Diagnosis and evaluation of the child with Attention-Deficit/Hyperactivity Disorder. *Pediatrics*, 105, 1158-1170.

American Council on Education and Education Commission of the States. (1988). *One-third of a nation: A report by the Commission on Minority Participation in Education and American Life.* Washington DC: Author.

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

American Psychiatric Association. (2000). Fact Sheet: Attention Deficit Hyperactivity Disorder. http://www.psych.org/public_info/adhdfactsheet42401.pdf, Washington, DC: Author.

Arnold, L. E. (1996). Sex differences in ADHD: Conference summary. *Journal of Abnormal Child Psychology*, 24, 555-569.

Atkins, M.S., Pelham, W.E., & Licht, M.H. (1985). A comparison of objective classroom measures and teacher ratings of attention deficit disorder. *Journal of Abnormal Child Psychology.*

Barkley, R.A. (1977). A review of stimulant drug research with hyperactive children. *Journal of Child Psychology and Psychiatry, 18,* 137-165.

Barkley, R.A. (1981). *Hyperactive children: A handbook for diagnosis and treatment.* New York: Guilford Press.

Barkley, R.A. (1990). *Attention–deficit hyperactivity disorder: A handbook for diagnosis and treatment*. New York: Guildford Press.

Barkley, R. A. (1998). *Attention deficit hyperactivity disorder: A handbook for diagnosis and treatment.* (2nd ed.). New York: Guilford.

Barkley, R.A., DuPaul, G.J., & McMurray, M. B. (1990). A comprehensive evaluation of attention deficit disorder with and without hyperactivity. *Journal of Consulting and Clinical Psychology,* 58, 775-789.

Barkley, R. A., Fischer, M., Edelbrock, C. S., & Smallish, L. (1990). The adolescent outcome of hyperactive children diagnosed by research criteria: I. An 8 year prospective follow-up Study. *Journal of the American Academy of Child and Adolescent Psychiatry, 29*, 546-557

Baumgaertel, A., Wolraich, M. L. & Dietrich, M. (1995). Comparison of diagnostic criteria for attention deficit disorders in a German elementary school sample. *Journal of the American Academy of Child and Adolescent Psychiatry,* 34, 629-638.

Bohline, D.S. (1985). Intellectual and effective characteristics of attention deficit disordered children. *Journal of Learning Disabilities, 18,* 604-608.

Brock, S. W., & Knapp, P.K. (1996). Reading comprehension abilities of children with attention-deficit/hyperactivity disorder. *Journal of Attention Disorders, 1*, 173-186.

Brown, R.T., & Borden, K.A. (1986). Hyperactivity at adolescence: Some misconceptions and new directions. *Journal of Clinical Child Psychology, 15,* 194-209.

Cantwell, D. P., & Satterfield, J.H. (1978). The prevalence of academic underachievement in hyperactive children. *Journal of Pediatric Psychology, 3,* 168-171.

Casey, J.E., Rourke, B. P., & Del Dotto, J.E. (1996). Learning disabilities in children with attention deficit disorder with and without hyperactivity. *Child Neuropsychology, 2,* 83-98.

Collett, B. R., Ohan, J. L., & Myers, K. M. (2003). Ten-Year Review of Rating Scales. V: Scales Assessing Attention-Deficit/Hyperactivity Disorder. *Journal of the American Academy of Child and Adolescent Psychiatry, 42,* 1015-37.

Conners, C. K. (1969). A teacher rating scale for use in drug studies with children. *American Journal of Psychiatry, 126,* 884-888.

Conners, C.K. (1973). Rating scales for use in drug studies with children. *Psychopharmacology Bulletin: Pharmacotherapy with children.* Washington, DC: Government Printing Office.

Conners, C., Sitarenios, G., Parker, J. D., & Epstein, J.N. (1998). The revised *Conners Parent Rating Scale* (CPRS-R): factor structure, reliability, and criterion validity. *Journal of Abnormal Child Psychology, 26,* 257-268.

Dewey, D., Crawford, S.G., Creighton, D. E., & Sauve, R. S. (2000). Parents' ratings of everyday cognitive abilities in very low birth weight children. *Journal of Developmental and Behavioral Pediatrics, 21,* 37-43.

Dewey, D., Crawford, S. G., & Kaplan, B. J. (2003). Clinical importance of parent ratings of everyday cognitive abilities in children with learning and attention problems. *Journal of Learning Disabilities, 36,* 87-95.

Diamond, K. (1987). Predicting school problems for preschool developmental screening: A four-year follow-up of the Revised Denver Developmental Screening Test and the role of parent report. *Journal of the Division of Early Childhood, 11,* 247-253.

Dulcan, M., & Work Group on Issues (1991) Practice parameters for the assessment and treatment of children, adolescents, and adults with attention-deficit/hyperactivity disorder. *Journal of the American Academy of Child and Adolescent Psychology, 36,* 85-121.

DuPaul, G. J., Schaughency, E., Weyandt, L. L., Tripp, G., Kiesner, J., Ota, K., et al. (2001). Self-report of attention-deficit/hyperactivity disorder symptoms in university students: Cross-national prevalence. *Journal of Learning Disabilities, 34,* 370-379.

DuPaul, G.J., & Stoner, G. (1994). *ADHD in the schools: Assessment and intervention strategies. New York*: Guilford Press.

Dykman, R.A., & Ackerman, P. T. (1992). Attention deficit disorder and specific reading disability: Separate but often overlapping disorders. In S. Shaywitz (Eds.), *Attention deficit disorder comes of age: Toward the twenty-first century* (pp. 165-184). Austin, TX: Pro-Ed.

Epstein, J. N., March, J. S., Conners, C. K., & Jackson, D. L. (1998). Racial differences on the *Conners Teacher Rating Scale*. *Journal of Abnormal Child Psychology, 26*, 109-118.

Fantuzzo, J., Grim, S., Mordell, M., McDermott, P., Miller, L., & Coolahan, K. (2001). A multivariate analysis of the revised *Conners' Teacher Rating Scal*e with low-income, urban preschool children. *Journal of Abnormal Child Psychology*, 29, 141-152.

Faraone, S.V., Biederman, J., Lehman, B., Keenan, K., Norman, D., Seidman, L.J., Kolodny, R., Kraus, I., Perrin, J., & Chen, W. (1993). Evidence for the independent familial transmission of attention deficit hyperactivity disorder and learning disabilities: Results from a family genetic study. *American Journal of Psychiatry, 150*, 891-895.

Fischer, M., Barkley, R., Fletcher, K., & Smallish, L. (1990) The adolescent outcome of hyperactive children diagnosed by research criteria, II: Academic, attentional, and neuropsychological status. *Journal of Consulting and Clinical Psychology, 58*, 580-588.

Fischer, M., Barkley, R., Edelbrock, K., & Smallish, L. (1990). The adolescent outcome of hyperactive children diagnosed by research criteria, II: Academic, attentional, and neuropsychological status. *Journal of Consulting and Clinical Psychology, 58,* 580-588.

Fischer, M., Barkley, R. A., Edelbrock, C. S., & Smallish, L. (1993). The stability of dimensions of behavior in ADHD and normal children over an 8-year follow-up. *Journal of Abnormal Child Psychology, 21*, 315-337.

Fischer, M., & Newby, R.F. (1991). Assessment of stimulant response in ADHD children using a refined multi-method clinical protocol. *Journal of Clinical Child Psychology*, *20,* 232-244.

Glascoe, F. P. (1991). Can clinical judgement detect children with speech-language problems? *Pediatrics, 87,* 317-322.

Glascoe, F. P. (1994). It's not what it seems: The relationship between parents' concerns and children's cognitive status. *Clinical Pediatrics, 33,* 292-298.

Glascoe, F. P. (1997a). Do parents discuss concerns about children's development with health care providers? *Ambulatory Child Health, 2,* 349-356.

Glascoe, F. P. (1997b) Parents' concerns about children's development with technique or screening test? *Pediatrics, 99*, 522-528.

Glascoe, F. P. (2000) Evidence-based approach to developmental and behavioural surveillance using parents' concerns. *Child: Care, Health, and Development, 26,* 137-149.

Glascoe,F. P., Altemeier, W. K., & MacLean, W. E. (1989). The importance of parents' concerns about their child's development. *American Journal of Disease of Children,* 143, 855-858.

Glascoe, F. P., & Dworkin, P.H. (1995). The role of partners in the detection of developmental and behavioral problems. *Pediatrics, 95,* 829-836.

Glascoe, F. P., & MacLean, W.E. (1990). How parents appraise their child's development. *Family Relations, 39,* 280-283.

Glascoe, F. P., MacLean, W.E., & Stone, W.L. (1991). The importance of parents' concerns about their child's behavior. *Child Pediatrics, 30,* 8-11.

Glow, R. A, Glow, P H., & Rump, E. E. (1982). The stability of child behavior disorders: A one year test-retest of Adelaide versions of the Conners Teacher and Parent Rating Scales. *Journal of Abnormal Child Psychology*, *10,* 33-60.

Guab, M., & Caryn, C. L. (1997). Behavioral characteristics of DSM-IV subtypes in a school-based population. *Journal of Abnormal Child Psychology, 25,* 13-112.

Gumple, T., Wilson, M., and Shalev, R. (1998) An Item Response Theory Analysis of the Conners Teacher's Rating Scale. *Journal of Learning Disabilities*, 31, 1998.

Hart, E.L., Lahey, B. B., Loeber, R., Applegate, B., & Frick, P. J. (1995). Developmental changes in attention-deficit hyperactivity disorder in boys: A four-year longitudinal study. *Journal of Abnormal Child Psychology, 23,* 729-750.

Heiligenstein, E., Conyers, L. M., Andrew, B. R., & Smith, M. A. (1998) Preliminary Normative Data on DSM-IV attention deficit hyperactivity disorder in college students. *Journal of American College Health, 46,* 185-188.

Horn, W. F., Ialongo, N., Popovich, S., & Peradotto, D. (1987). Behavioral parent training and cognitive-behavioral self-control therapy with ADD-H children: Comparative and combined effect. *Journal of Clinical Child Psychology,* 16, 57-68.

Jackson, B., & Farrugia, D.L. (1997). Diagnosis and treatment of adults with attention deficit hyperactivity disorder. *Journal of Counseling and Development,* 75, 312-319.

Javorsky, J., & Gussin, B. (1994). College students with attention deficit hyperactivity disorder: an overview and description of services. *Journal of College Student Development,* 35, 170-177.

Lambert, N., Hartsough, C., & Sandoval, J. (1990). *Manual for the Children's Attention and Adjustment Survey.* Circle Pines, MN: American Guidance Service.

Langsdorf, R., Anderson, R. P., Waechter, D., Madrigal, J., & Juarez, L. (1979). Ethnicity, social class, and perception of hyperactivity. *Psychology in the Schools*, 16, 293-298.

Lerner, J.W., Lowenthal, B., & Lerner, S.R. (1995) *Attention deficit disorder: Assessment and teaching.* Pacific Grove, CA: Brooks/Cole

Marsella, A.J., & Kameoka, V. A. (1989). *Ethnocultural issues in the assessment for clinician*. Washington DC: American Psychiatric Press.

Mash, E.J., & Terdal, L.G. (1997). Assessment of child and family disturbances: A behavioral-systems approach. In E.J. Mash & L.G. Terdal (Eds.), *Assessment of childhood disorders* (3rd ed., pp. 3-68). New York: Guilford Press.

Matson, J. L. (Ed.) (1993). *Handbook of hyperactivity in children.* Boston: Allyn & Bacon.

Mattison, R. E., Gadow, K.D., Sprafkin, J., Nolan, E. E., & Schneider, J. (2003). A DSM-IV-Referenced teacher rating scale for use in clinical management. *Journal of the American Academy of Child and Adolescent Psychiatry, 42*, 442-449.

McGee, R., Williams, S., Moffitt, T., & Anderson, J. (1989). A comparison of 13-year old boys with attention deficit and/or reading disorder on neuropsychological measures. *Journal of Abnormal Child Psychology, 17*, 37-53.

Miller, L. S., Koplewicz, H. S., Klein, R. G. (1997). Teacher ratings of hyperactivity, inattention, and conduct problems in preschoolers. *Journal of Abnormal Child Psychology, 25,* 113-119.

Mulhern, S., Dworkin, P.H., & Bernstein, B. (1994). Do parental concerns predict a diagnosis of attention-deficit hyperactivity disorder? *Journal of Developmental and Behavioral Pediatrics, 15, 348-352.*

Munir, K., Biederman, J., & Knee, D. (1987). Psychiatric comorbidity in patients with attention deficit disorder: A controlled study. *Journal of the American Academy of Child and Adolescent Psychiatry, 26,* 844-848.

National Institute of Health. (2003) *Attention Deficit Hyperactivity Disorder: Question and answers*. http://www.nimh.nih.gov/publicat/adhdqa.Bethesada, Maryland: Author.

Ohan J. L, Johnston C (1999, April). Gender appropriateness of the diagnostic criteria for the externalizing disorders. In Moretti M, chair. *Aggression in girls: Diagnostic and interpersonal factors. Symposium presented at the biennial meeting of the Society for Research in Child Development*. Albuquerque, NM.

O'Leary, S. G., & Steen, P. L. (1982). Subcategorizing hyperactivity: The Stony Brook Scale. *Journal of Consulting and Clinical Psychology*, *50,* 426-432.

Parker, H. C. (1992). *The ADD hyperactivity handbook for schools: Effective strategies for identifying and teaching students with attention deficit disorders in elementary and secondary schools.* Plantation, FL: Impact.

Pelham, W. E., Bender, M. E., Caddell, J., Booth, S., & Moorer, S. H. (1985). Methylphenidate and children with attention deficit disorder. *Archives of General Psychiatry, 42*, 948-952.

Pelham, W.E., Murphy, D. A., Vannatta, K. (1992). Methylphenidate and attributions in boys with attention-deficit hyperactivity disorder. *Journal of Consulting and Clinical Psychology, 60*, 282-292.

Prior, M., Leonard, A., & Wood, G. (1983). A comparison study of preschool children diagnosed as hyperactive. *Journal of Pediatric Psychology, 8,* 191-207.

Quay, H. C., & Peterson, D. R. (1983). *Interim manual for the Revised Behavior Problem Checklist*. Department of Psychiatry, University of Miami.

Quality Education for Minorities Project. (1990). *Education that works: An action plan for education of minorities*. Cambridge: Massachusetts Institute of Technology.

Quinn P. O, & Nadeau K. G (2002) (Eds.) *Gender issues and AD/HD: Research, diagnosis, and treatment*. Silver Spring, MD: Advantage.

Rapport, M.D., DePaul, G.J., Stoner, G., & Jones, J. T. (1986). Comparing classroom and clinic measures of attention deficit disorder: Differential, idiosyncratic, and dose-response effects of methylphenidate. *Journal of Consulting and Clinical Psychology,* 54, 334-341.

Reid, R. (1995). Assessment of ADHD with culturally different groups: The use of behavioral rating scales. *School Psychology Review, 24*, 537-560.

Reid, R., Casat, C. D., Norton, H.J., Anastopoulos, A. D., Temple, E. P. (2001). Using behavior rating scales for ADHD across ethnic groups: The IOWA Conners. *Journal of Emotional and Behavioral Disorders, 9,* 210-219.

Reid, R., DuPaul, G. J., & Power, T.J. (1998). Assessing culturally different students for attention deficit hyperactivity disorder using behavior rating scales. *Journal of Abnormal Child Psychology, 26,* 187-198.

Rohde, L. A. (2002). ADHD in Brazil: The DSM-IV Criteria in a culturally different population. *Journal of the American Academy of Child and Adolescent Psychiatry, 41,* 1131-1133.

Rowe, K. S., & Rowe, K.J. (1992). The relationship between inattentiveness in the classroom and reading achievement, Part B: An explanatory study. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 357-368.

Rowe, K. S., & Rowe, K.J. (1997). Norms for parental ratings on Conners' abbreviated parent-teacher questionnaire: Implications for the design of behavioral rating inventories and analyses of data derived from them. *Journal of Abnormal Child Psychology, 25,* 425-451.

Rutter, M. (1967). A children's behavior questionnaire for completion by teachers: Preliminary findings. *Journal of Child Psychology and Psychiatry, 8*, 1-11.

Semrud-Clikeman, M., Biederman, J., Sprich-Buckminster, S., Lehman, B.K., Faraone, S.V., & Norman, D. (1992). Comorbidity and learning disability: A review and report in a clinically referred sample. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*, 430-448.

Shaywitz, S. E., Schnell, C., Shaywitz, B. A., & Towle, V R. (1986). *Yale Children's Inventory* (YCI): An instrument to assess children with attentional deficits and learning disabilities 1. Scale development and psychometric properties. *Journal of Abnormal Child Psychology, 14,* 347-364.

Smucker, W.D, Hedayat, M. (2001). Evaluation and treatment of ADHD. *American Family Physician, 64*, 817-832.

Sonuga-Barke, E., Minocha, K., Taylor, E. A., & Sandberg, S. (1993). Inter-ethnic bias in teachers' ratings of childhood hyperactivity. *British Journal of Developmental Psychology*, 11, 187-200.

Spitzer, R. L., Davies, M., & Barkley, R. A. (1990). The DSM-III-R field trial for disruptive behavior disorders. *Journal of the American Academy of Child and Adolescent Psychiatry, 29,* 690-697.

Stewart, M. A., Pitts, F.N., Craig, A.G., & Dieruf, W. (1966). The hyperactive child syndrome. *American Journal of Orthopsychiatry, 36*, 861-867.

Szatmari, P., Offord, D. R.,& Boyle, M.H. (1989). Correlates, associated impairments, and patterns of service utilization of children with attention deficit disorders: Findings form the Ontario Child Health Study. *Journal of Psychology and Psychiatry, 30,* 204-217.

Tarver-Behring, S., Barkley, R. A., & Karlsson, J. (1985). The mother-child interaction of hyperactive boys and their normal siblings. *American Journal of Orthopsychiatry*, *55,* 202-209.

Thompson, M.D., & Thompson, G. (1991). Early identification of hearing loss: Listen to parents. *Clinical Pediatrics, 30,* 77-80.

Ullmann, R. K., Sleator, E. K., & Sprague, R. L. (1985). Introduction to the use of the ACERS. *Psychopharmacology Bulletin, 21,* 915-916.

Waechter, D., Anderson, R., Juarez, L., Langsdorf, R., & Madrigal, J. (1979). Ethnic group, hyperkinesis, and modes of behavior. *Psychology in the Schools*, *16,* 435-439.

Weiss, G., & Hetchman, L. (1993). *Hyperactive children grown up* (2nd ed.). New York: Guilford Press

Werry, J. S., Elkind, G.S., & Reeves, J. S. (1987). Attention deficit, conduct, oppostional, and anxiety disorders in children: III. Laboratory differences. *Journal of Abnormal Child Psychology, 15,* 409-428.

World Health Organization. (1994). *International classification of diseases* (10th ed.). Geneva, Switzerland: Author.

Young, K.T., Davis, K., Schoen, C., & Parker, S. (1998). Listening to parents: A national survey of parents with young children. *Archives of Pediatrics and adolescent Medicine, 152,* 255-262.