

Diagnosing Attention-deficit Hyperactivity Disorder and Learning Disabilities with Chemically Dependent Adolescents

NORBERT RALPH, PH.D., M.P.H.* & MARY ANN BARR, PH.D.*

The diagnosis and treatment of chemically dependent adolescents with a second diagnosis of learning disabilities (LD) or an attention-deficit hyperactivity disorder (ADHD) poses a challenge. Like other so-called dual diagnoses, these conditions must be assessed against the background "noise" of the adolescent chemical dependency syndrome. This syndrome is coincident with the onset and cessation of chemical dependence and abuse. A diagnostic framework for assessing chemically dependent adolescents is presented, with specific reference to the differential diagnosis of LD and ADHD from other conditions. The role of LD and ADHD is assessed with regard to being a risk factor for chemical dependence in adolescence. Treatment approaches, on both an inpatient and outpatient basis, with the chemically dependent adolescent who also has an LD or ADHD are discussed.

The diagnosis of the related conditions of learning disabilities (LD) and attention-deficit hyperactivity disorder (ADHD) is particularly important in the treatment of chemical dependence (CD) in adolescents. They may be significant risk factors for some types of CD, and pose special problems for those chemically dependent adolescents who have these conditions. The present article addresses the problems associated with making a diagnosis of a psychological disorder in addition to CD (with special regard to the diagnoses of ADHD and LD), examines whether or not these conditions are risk factors for adolescent CD, and discusses the implications for CD treatment of adolescents with these conditions.

THE ADOLESCENT CHEMICAL DEPENDENCY SYNDROME

Providing an adequate psychological assessment for adolescents being treated for CD is crucial to treatment planning and outcome. The diagnosis of another psycho-

*Sausalito Professional Clinic, Sausalito, California.

Please address reprint requests to Norbert Ralph, Ph.D., 3550 Pacific Avenue #306, Livermore, California 94550.

logical disorder in chemically dependent adolescents is not an academic concern, but rather a clinical challenge that requires some additional procedure or perspective to supplement CD treatment. The problems of dual diagnosis of adolescents have not received the attention in the literature that they have with respect to adults. Differential diagnosis may be particularly challenging with adolescents, and is critically important to successful treatment.

The diagnosis of another psychiatric disorder in addition to a CD diagnosis must be made against the background "noise" or behavioral symptoms associated with adolescent CD. While *DSM-III-R* (American Psychiatric Association 1987) defines the criteria for substance abuse and dependence (which here is referred to as CD), it does not specify associated behavioral characteristics that are commonly observed with the condition. With adolescent CD, an additional adjustment syndrome not specified in *DSM-III-R* could be identified—which could be called the Adolescent Behavioral Chemical Dependency Syndrome (ABCD-S)—and would describe the associated behavioral features of adolescent CD.

What are the characteristics of this disorder? An unpublished study (Morgan 1988)—supervised by one of the

FIGURE 1
CHILD BEHAVIOR CHECKLIST PROFILE FOR 13- TO 16-YEAR-OLD INPATIENT CHEMICALLY DEPENDENT MALES



TABLE I
 ADOLESCENT CHEMICAL DEPENDENCY PSYCHOLOGICAL RISK FACTORS*

	Clinical Interview & History	Parent/Family Interview	Personality Inventory	Behavior Checklist	Intelligence Test	Academic Achievement	Neuropsychological Test	Projective Test	Sentence Completion	Clinical Observation Over Time
Conduct Disordered Patterns										
Level of substance misuse, type of substances	VH	H	M	H	N	N	N	M	M	VH
Assimilation to a drug/delinquent subculture	VH	H	H	H	L	N	N	M	M	VH
Conduct disordered thinking (lying, denial, minimize, blame)	VH	H	H	H	M	N	N	VH	H	VH
Conduct disordered behavior (violates social rules, and rights of others)	VH	H	H	VH	N	N	N	H	H	VH
Family Factors										
Family structure/organization	M	M	L	N	N	N	N	M	L	VH
Family attachment	M	M	L	N	N	N	N	M	L	VH
Family substance abuse or psychiatric history	M	M	VL	N	N	N	N	M	L	VH
Psychiatric Factors										
Depression	VH	H	VH	VH	L	N	L	H	M	VH
Suicide risk	VH	H	VH	M	N	N	L	M	L	VH
Schizophreniform disorders	VH	H	H	L	M	N	L	VH	L	VH
Hyperactivity/ADD disorders	H	H	M	H	M	N	L	H	L	VH
Learning disabilities	M	M	VL	L	VH	VH	M	M	M	M
Anxiety/panic disorders	VH	H	H	M	L	VL	L	H	L	VH
Eating disorders	VH	H	H	M	N	N	N	L	VL	VH
Sexual and/or physical abuse	VH	H	H	N	N	N	N	M	VL	VH
Motivation for treatment	VH	H	M	N	N	N	N	VH	H	VH
Coping, defending, and problem solving capacity	VH	M	M	N	L	N	N	VH	M	VH

*Key: VH=very high; H=high; M=moderate; L=low; VL=very low; N=none.

still elevated) on these measures after treatment. On each measure there were statistically significant changes of over two standard deviations.

These preliminary findings are consistent with the present authors' clinical experience. Also, they point to the need for clarifying possibly overdiagnosed dual diagnosis conditions among chemically dependent adolescents, such as conduct disorders, oppositional defiant disorder, and depressive disorders. Clearly, any chemically dependent adolescent who has been using drugs for more than six months or selling drugs to support his/her habit can likely qualify for a conduct disorder when admitted to treatment. Similarly, any chemically dependent adolescent who comes from a dysfunctional family characterized by volatility or whose parents are unable to allow age-appropriate independence and separation is likely to obtain the label "oppositional defiant disorder." However, making the diagnosis of conduct disorder or oppositional defiant disorder is not justified unless the behaviors significantly precede the onset of CD and/or persist more than two months after sobriety has been achieved and maintained.

The overdiagnosis of depression in the newly admitted chemically dependent adolescent is also possible. Depression that is secondary to toxic or withdrawal effects from CD, and/or the negative feedback and antagonism from family regarding dysfunctional behavior associated with CD, would precipitate depressive symptoms consistent with a depressive disorder by *DSM-III-R* standards. However, a depressive disorder should be considered only if depressive symptoms persist more than two to four weeks after the achievement of continuous abstinence. At that point, a diagnostic workup should be instituted, along with a medication evaluation.

THE ASSESSMENT OF ATTENTION-DEFICIT HYPERACTIVITY DISORDER AND LEARNING DISABILITIES IN CHEMICALLY DEPENDENT ADOLESCENTS

The psychological assessment of chemically dependent adolescents should include a multimethod approach. Reliance on multiple methods provides a richer data base for diagnosis and treatment planning, and a chance for new information to emerge.

The model used by the present authors includes the following: diagnostic clinical interviews with adolescent and parents, adolescent personality inventory, behavior problems checklist, projective testing, sentence completion, standardized intelligence test, a test of educational achievement, and a neuropsychological screening device. In addition, a drug screen and clinical observations of the client over time are important in this scheme. These tests contribute differentially to understanding diagnostic conditions. The concept of how these different techniques

contribute is described in Table I.

Attention-deficit Hyperactivity Disorder

The diagnosis of learning disabilities and ADHD in *DSM-III-R* is identical in childhood and adolescence, although the characteristics of ADHD are expressed differently. *DSM-III-R* describes ADHD as an excessive degree of inattention, impulsiveness, and hyperactivity. The diagnostic criteria have changed slightly from *DSM-III* (American Psychiatric Association 1980) to *DSM-III-R* to improve differential diagnosis from the often overlapping conditions of oppositional defiant disorder and conduct disorder. Categories that did not appear to be empirically useful were deleted. Instead of using three areas as *DSM-III* does, *DSM-III-R* uses list of 14 criteria listed in descending order of discriminating power. The individual must have eight of these 14 criteria for a diagnosis of ADHD. Also, classification is listed as mild, moderate, and severe. A childhood diagnosis of either condition does not necessarily mean that the condition will continue in adolescence to a sufficient degree to warrant a diagnosis, but aspects of the disorder are thought to persist into adulthood (Wender 1987). *DSM-III-R* estimates that three percent of children have the disorder, and boys are diagnosed six to nine times more frequently than girls. This is consistent with the range cited by Barkley (1980). No figures are published separately for the prevalence in different age groups.

While these criteria as well as additional information in *DSM-III-R* provide an excellent description of the syndrome and its characteristics in adolescence, some limitations are evident. *DSM-III-R* does not specify an objective method of defining what constitutes "behavior considerably more frequent than most people of the same mental age" for the 14 traits listed. Barkley suggested the use of some type of objective rating scale, and a score above the ninety-eighth percentile, using age/sex norms on teacher and/or parent rating scales.

An aspect not included in *DSM-III-R* but emphasized by Barkley (1980) are deficits in rule-governed behavior. Barkley stated that ADHD children and adolescents get noticed because of their habitual noncompliance with the explicit and implicit rules of social settings. His research indicated that hyperactivity measures on parent/teacher rating scales correlate not with excessive motor behavior, but with noncompliance in referred children. Hyperactivity rating scales, and perhaps *DSM-III-R* criteria, may correlate not with just hyperactivity or attention deficits, but rather with noncompliance in subtle and nonapparent ways.

The explosive volatility of this disorder is another feature of behavior not usually included in the clinical description of ADHD. This is especially observable in ADHD youngsters, particularly when they are stressed in a structured CD inpatient setting. This is because, in the present authors' clinical experience, ADHD children and

authors (Ralph)—of 60 admissions to a hospital-based inpatient CD unit provides a useful perspective. The Child Behavior Checklist (CBC) (Achenback & Edelbrock 1983) was used, which is a questionnaire completed by parents that rates both adaptive behaviors and behavior problems. It was completed by the parents of 60 adolescent male patients (ages 13 to 16 years) as part of the intake assessment at admission. The subject's standardized scores were compared to a normative sample, as one might use an MMPI. The scales measuring behavior problems were somatic complaints, schizoid, uncommunicative, immature, obsessive-compulsive, hostile-withdrawn, delinquent, aggressive, and hyperactive. The results are shown in Figure 1. Parent ratings of the chemically dependent sample were significantly higher ($p < .001$) on all behavior problem scales, and significantly lower ($p < .001$) on all social competence scales compared to the normative sample. The inpatient chemically dependent adolescents scored above the ninety-eighth percentile for behavior problem scales measuring delinquency, hyperactivity, and withdrawn-depressed types of behaviors; and also showed decreased social competence in the areas of school performance and social participation. There were no differences associated with different types of drug or alcohol use.

These preliminary results, while based on a modest sample size, are consistent with several other studies of chemically dependent adolescents (Donovan, Jessor & Costa 1988; Jessor 1988; Spotts & Shontz 1985; Wright 1985; McKenry, Tishler & Kelly 1983; Jessor, Chase & Donovan 1980). Briefly described, these studies showed marked patterns of problem behaviors among chemically dependent adolescents, including increased deviant behaviors, sexual precociousness, more depression and suicide attempts, and general avoidance of behavioral consequences of the individual's actions.

These studies define characteristics associated with ABCD-S. The present authors view this disorder as coincident with the adolescent's CD disorder. Many factors are likely to contribute to this proposed syndrome, including the toxic effects of substance abuse affecting concentration, attention, problem-solving capacity, and mood. It is related to a change in social role and reference groups that is often associated with adolescent CD. This position should be regarded as a hypothesis consistent with clinical experience and in need of further investigation, but not a definitive finding.

The present authors define an ABCD-S using *DSM-III-R*-type terminology as a disturbance of behavior that has its onset after the development of a CD disorder, and largely subsides two months after the onset of sobriety. The syndrome includes most of the following:

1. Home behavior—Increased belligerence and defiance toward parents. Alienation from parental

values, parental authority, and decreased parental attachment.

2. Values—Decline in achievement orientation and compliance with socially conventional expectations.
3. Peers—A change in identification to a delinquent and drug/alcohol using peer group.
4. Social—Decrease of previous involvements with social groups, recreational activities, and friends.
5. School—Decline in school achievement, increased truancy, and disciplinary problems.
6. Legal—Increased delinquent behaviors and involvement with probation.
7. Increased conduct-disordered thinking, such as denial, lying, minimization, and externalizing responsibility.
8. Increased risk-taking behavior, and sexual acting out.
9. Lack of long-range planning, problem solving, and ends/means thinking.

This behavior pattern is often associated with the following psychiatric symptoms: (1) increased depressive and suicidal symptoms; and (2) increased hyperactivity, distractibility, and restlessness. The syndrome can be specified as mild, moderate or severe.

This behavioral syndrome should be understood in the context of the primary developmental tasks of this stage of life: moving from adolescence to adulthood. This includes establishing independence from parental control and dependence, and capacity for self-regulation. The ABCD-S represents a dysfunctional resolution to this developmental task. In attempting to gain independence from parents, adolescents find themselves controlled even more oppressively by their CD and an often rigidly and destructively conformist delinquent peer culture. In attempting to be independent from parental control, the adolescent is less capable to function independently in adult life, such as developing the psychological skills for self-regulation and economic independence. The ABCD-S is a shortcut dysfunctional way of trying to grow up and establish a sense of wholeness and independence.

Unlike most descriptions of this behavioral syndrome in the literature, the present authors believe the symptoms of this proposed syndrome rapidly disappear with the development of sobriety and the beginning of recovery. Suicidal gestures, overtly defiant behaviors, major depressive symptoms, and much of the expression of pro-drug attitudes, show a dramatic decrease within the first two- to three-week period of successful abstinence. The results of an unpublished study (Ralph 1988) with a group who completed inpatient CD treatment found that while the sample fell above the ninety-eighth percentile before admission on delinquent, withdrawn, and hyperactive behaviors, the sample scored within normal limits (though

type of assessment is not carried out and staff are not sensitized to the issue. Neuropsychological testing provides useful complementary information of related deficits, but these tests are not as well developed in identifying specific types of learning errors compared to the Kaufman Test of Educational Achievement, for example, with its sophisticated qualitative error analysis capacity. The cost of neuropsychological testing may outweigh its practical use in most circumstances.

Complementary information can often be derived from other sources, as the assessment schema described above indicates. The clinical interview and projective testing provide examples of expressive language use. Aspects of LD are expressed in a variety of interactions, such as a clinical interview or psychotherapy sessions, but come into focus as part of a treatment plan only when a formal psychological assessment is carried out.

Is there the possibility of confusion in making the diagnosis of LD in chemically dependent adolescents? Noncompliance with authority and a lack of achievement motivation are part of the ABCD-S. These behaviors can be expressed as inability to function academically, which in turn can be confused with a possible LD by parents or educators. Self-administered achievement tests, such as the Comprehensive Test of Basic Skills (McGraw-Hill 1983), that are not administered by an individual examiner are more vulnerable to lower scores because an examiner is not able to monitor performance. This is largely avoided by having achievement tests individually administered by a psychologist or test technician. The exclusionary conditions mentioned by *DSM-III* and likewise Public Law 94-142 should also be mentioned as considerations to exclude a diagnosis of LD. Acute psychiatric conditions like schizophreniform disorders, acute toxic conditions or a severe depression can dramatically affect an adolescent's educational performance, and an LD diagnosis should be deferred until the acute phase of the condition is resolved.

Characteristics of Learning Disabilities and Attention-deficit Hyperactivity Disorder in Chemically Dependent Adolescents

The association of LD and ADHD symptoms has long been noted (Crabtree 1981; Barkley 1980). Most authors view these conditions as overlapping, neuropsychologically based disorders. The terms "minimal brain dysfunction," "learning disabilities," and "hyperactivity" have often been used interchangeably, reflecting the coincidence of a pattern of overactivity, short attention, and learning problems. In an unpublished study conducted by one of the authors (Ralph) of children referred to a child development center, 38 percent had a *DSM-III* diagnosis of attention deficit disorder with hyperactivity, and 38 percent of children had a statistically significant discrepancy between their intellectual and academic functioning in which

their intellectual functioning exceeded their academic functioning. Thirty-four percent of the children whose intellectual functioning significantly exceeded their academic functioning also had an ADD, and 34 percent of the ADD group likewise had an intellectual score that significantly exceeded their academic score.

Does a diagnosis of these conditions made in childhood persist into adolescence? Using the *DSM-III* term "attention deficit disorder with hyperactivity" (ADDH), Klee and Garfinkel (1983) found in a study of 27 adolescent boys who were formerly diagnosed as ADDH that 30 percent of this sample still could be classified as ADDH or the residual condition. Lambert and colleagues (1987) reported that 20 percent of children diagnosed as ADDH showed no significant symptoms as adolescents, 37 percent showed persistent ADDH symptoms but were not under treatment, and 43 percent of adolescents were still receiving some type of treatment and experiencing ADDH symptoms as well as significant problems in living. Gittelman and colleagues (1985) reported a prospective longitudinal study of 101 male adolescents (ages 16 to 23 years) who had been diagnosed and treated for ADD in childhood (ages 6 to 12 years), and who were compared with 100 normal controls. The *DSM-III* diagnoses were made blind to group membership. The full ADDH syndrome persisted in 31 percent of the probands versus three percent of the controls, and another nine percent of the probands had some residual aspects of the disorder. Generalizations from these and related studies are difficult to make authoritatively because different diagnostic criteria are often used, there are differential dropout rates at follow-up, and different outcome criteria are specified. It appears reasonable to state that chemically dependent adolescents with a childhood diagnosis of ADHD may have some ADHD characteristics, and a significant number will still have the full syndrome.

What are the characteristics of the ADHD adolescent? Weiss and colleagues (Hechtman et al. 1984; Hechtman, Weiss & Perlman 1984) reported follow-ups of adolescents who had been diagnosed using *DSM-II* (American Psychiatric Association 1968) criteria for hyperkinetic reaction of childhood. Children were followed up at early and late adolescence, and comparisons could be made with earlier ratings by parents and school personnel. Early adolescents had continued academic problems, and excessive hyperactivity continued but less disruptively than in childhood. They noted a persistent sadness and depressive responses, which were possibly in response to repeated frustrations at home and school. At age nineteen, subjects continued to perceive themselves as more tense and restless, and had lower self-esteem than controls. Interestingly, ratings by employers showed no differences between hyperactive adolescents and controls, though those in school continued to experience school-related frustrations. They found that 30 to 40 percent had relatively good outcome, 40 to 50

adolescents have limited ego skills and resources for coping with significant life stresses, and are at risk to be labeled as "out of control" or "uncontrollable" when under severe stress. This is supported by Satterfield, Hoppe and Schell's report (1982) of adolescent outcomes for a sample with a childhood diagnosis and treatment of what they described as attention deficit disorder (ADD) using approximate *DSM-III* criteria. Twenty-five percent of the childhood ADD sample and one percent of a matched control sample had psychiatric, group home, or juvenile justice placements. This is also consistent with Weiss and colleagues (Hechtman et al. 1984; Hechtman, Weiss & Perlman 1984) who found with a similar sample that 10 percent had serious antisocial and psychiatric disturbances.

Assessing adolescents with this condition is more difficult than with children. For the school-age child, it is relatively easy to obtain information from parents and teachers both by questionnaire and by clinical interview. Most grade-school teachers are easily reached by telephone for a brief interview and case planning. The chemically dependent adolescent typically has six different teachers or is not attending school at all. Obtaining rating scales from teachers is almost never practical for adolescents. The symptoms of ADHD are usually less apparent because the adolescent has acquired more sophisticated social skills to cope with the socially disruptive features of the disorder. There is some evidence from Gardner's work (1979) that objective measures of attention and concentration show much improvement for ADHD in adolescence. However, ADHD adolescents are still clearly distinguishable from non-ADHD populations. Alcohol and other drug use are not often a complicating condition for children.

As Barkley (1980) noted, parent or teacher rating scales (such as the CBCL) appear to be the most reliable methods for diagnosis and to discriminate ADHD patients from other diagnostic groups. Also, they are sensitive to the effects of medication and psychotherapeutic interventions. Gittelman and colleagues (1985) described a model for diagnosing ADD in adolescence using parent as well as adolescent structured interviews. Not surprisingly, reports of parents were more reliable than those of adolescents, although adolescent reports of conduct problems correlated highly with parents' reports. Seventy-five percent of interview items with the ADD sample agreed with parent ratings as compared to 85 percent agreement with controls. There are interesting developments with other ADHD diagnostic techniques, such as laboratory-based computer-driven attention/concentration tasks (Gordon 1985), Kagan's matched figures (1966), or observational rating techniques (Barkley 1987).

Assessing adolescents on an inpatient unit using behavior rating scales can be completed by staff after the adolescent has completed a detoxification period. No rating scales have been normed specifically for inpatient or resi-

dential settings, but it would appear that Edelbrock's Child Attention/Activity Profile (Barkley 1987), which is the only measure of inattention available, would be the best choice.

Where would the use of *DSM-III-R* and the use of objective rating scales fit in the assessment model described above? *DSM-III-R* would presumably use a clinical interview including a history with the parents and the teenager that ideally is similar to the model Gittelman and colleagues (1985) described. If an objective rating scale is added, the assessment would also include a behavior rating scale from parents or treatment staff. If a diagnostic assessment is defined by the categories of *DSM-III-R* or a behavioral questionnaire, the concepts to guide treatment are limited and narrow "bandwidth" techniques, thereby not permitting information to emerge that is not included in the instrument.

Significant information in the present authors' experience is added by additional procedures. Painting a picture of how the person functions in his or her family and social milieu as well as expresses various characteristics of personality can provide information that can enrich treatment planning. For example, Bellak (1986) pointed out that ADHD children and adolescents characteristically give impulsive responses on the Thematic Apperception Test, reflecting limited planning and problem-solving strategies. The present authors have also found that ADHD adolescents often describe themselves as restless, overactive, and impulsive on self-report personality inventories. This condition is associated with "neurological soft signs," of which neuropsychological and intelligence testing can provide a description, including such characteristics as deficits in short-term verbal memory or auditory discrimination problems (Barkley 1980). The neuropsychological intactness of the client can provide important guidelines relevant to the structuring of CD treatment.

Making the diagnosis of ADHD in chemically dependent adolescents poses challenges. As mentioned in describing the ABCD-S, some of the symptoms of this disorder are impulsiveness, inattention, and overactivity. ADHD may be underdiagnosed due to hyperactive symptoms attributed to CD. Where adequate awareness regarding ADHD exists, the disorder can be identified.

Other diagnostic categories may invite confusion with ADHD in chemically dependent adolescents. There is a high degree of overlap between ADHD, oppositional defiant disorder, conduct disorder, and some types of LD. *DSM-III-R* assumes that oppositional and aggressive characteristics are not part of the impulsiveness, explosive volatility, and limited capacity for anticipating consequences of ADHD, but in fact constitute another disorder. This appears to be a somewhat artificial distinction, but it may be useful in conceptualizing the degree of oppositional and aggressive behavior associated with the disorder, just

as ADHD is characterized as mild, moderate, and severe.

According to Millich and Loney (1979), the prognosis in adolescence is worse for children with significant aggression, which would most likely mean that a diagnosis of conduct disorder or oppositional defiant disorder would be used. They stated that it is important to separate out aggression from attention problems and that the two are confounded on some rating scales used for assessment. Gittelman and colleagues (1985) reported that 48 percent of ADHD adolescents in their sample had a diagnosis of conduct disorder, and that substance abuse disorders were found in both ADHD adolescents and controls only after the onset of a conduct disorder, which contradicts the present authors' experience and the hypothesis proposed here.

Chemically dependent adolescents with a diagnosis of severe ADHD with oppositional features may be mistakenly diagnosed as having a bipolar disorder. With a chemically dependent ADHD adolescent, it is easy to elicit a history of rapid mood changes, irritability, sleep disturbance, sexual acting out, and the spending of excessive amounts of money. These can be part of the CD syndrome in the chemically dependent ADHD adolescent, and not part of a bipolar disorder. What is missing from the ADHD adolescent diagnosed as bipolar is the manic inflated sense of self, grandiosity, lack of need for sleep, hypersexuality, and manic quality of thought, which clearly differentiate the ADHD adolescent from the bipolar disorder. The childhood history of ADHD also clearly differentiates the two conditions, although little research is available in this area. The possibility of confusion has been noted by Casat (1982), who argued for the importance of differentiating ADHD and bipolar disorders. As Carlson (1985) pointed out, bipolar illness begins with acute-onset depression, hypersomnia, psychomotor retardation, and psychosis, followed by mania within a three-year period. Most distinguishing is the family history of affective or bipolar disorders.

Confusion is also possible with schizophrenic spectrum disorders. For example, in the present authors' experience, youngsters with schizophreniform disorders on the CBCL have a ADHD profile. The ADHD adolescent may exhibit a rapid, impulsive, and poorly organized thinking style, the differential diagnosis is made by assessing the disorganized and bizarre cognitive processes of a thought disorder, which distinguishes the two conditions in the absence of a mood disorder. Anxiety and panic disorders as well as postmolestation syndromes are also conditions that might lead to hyperactivity and distractibility as symptoms, and they should be considered. Some confusion may also arise when distinguishing ADHD in the adolescent from overanxious disorders that occur frequently during adolescence (Kashani & Orvaschel 1988). The nervousness and jitteriness found in the ADHD adolescent is quite different

from the excessive and unrealistic worry, need for reassurance, and fear of the future that characterize an overanxious disorder.

Learning Disabilities

Learning disabilities are defined in *DSM-III-R* as specific developmental disorders on Axis II. They are defined as arithmetic, expressive writing, reading, articulation, expressive language, receptive language or coordination disorders. This definition is consistent with California's and most other states' interpretation of Public Law 94-142 (*Federal Register* 1977). It is required that these disorders interfere significantly with the ability to function academically, and that there exists a discrepancy between the person's intellectual capacity as measured by a standardized IQ test and the individual's academic performance. For example, a specific reading developmental disorder would be assessed by finding a significant discrepancy between an adolescent's IQ and his or her score on some type of reading achievement test. These conditions are diagnosed as present if they are not due to some other related physical and/or psychological condition (e.g., hearing loss, visual acuity problems, inadequate educational exposure or lack of adequate effort during the testing). The prevalence of learning disabilities depends on the size of the discrepancy specified, but *DSM-III-R* cites a figure from two to eight percent of children, and boys substantially outnumber girls. Many types of learning disorders in adolescence exist, and as Lochman and Ralph (1980) reported, they are as various as adolescents themselves.

What constitutes a significant discrepancy and the method to determine it is of some debate. Sattler (1982) described the virtues of various methods on statistical and empirical grounds. The method used in most educational settings is a discrepancy between scores on an IQ test and an academic achievement scores. Except for the Woodcock-Johnson Psycho-Educational Battery (Woodcock 1977), achievement and IQ tests for adolescents are normed on different populations who were tested at different times. This is largely overlooked in interpreting these tests, as well as the percent of adolescents actually identified by a given discrepancy score. While many alternatives exist, the most widely used intelligence tests are the WISC-R (Wechsler 1974) and WAIS-R (Wechsler 1981); and standardized achievement tests, such as the Kaufman Test of Educational Achievement (Kaufman & Kaufman 1985) or the Woodcock-Johnson Psycho-Educational Battery.

The combination of a standardized intelligence test and academic achievement test are clearly definitive with regard to diagnosing a LD. If psychological testing is not carried out using an intelligence test and an academic achievement test, the diagnosis of a LD cannot be authoritatively made. In the present authors' experience this disorder often goes unrecognized in CD programs where this

natural cohort with 54 ADHD and 47 controls (mean age of 15), and then a year later regarding alcohol and other drug use. The only reliable difference was with regard to cigarette smoking. A later study using more restrictive criteria for hyperactivity (Lambert 1988) reported that ADHD children were more likely to engage in the use of cocaine, barbiturates, inhalants, psychedelics, and opiates, although not marijuana or alcohol.

Are LD and adolescent drug abuse related? The present authors could identify no research that studied this relationship specifically. However, Keilitz and Duviant (1986) examined the relation of LD to delinquency in a cross-sectional study of 970 adolescents who had some juvenile court conviction with 970 controls. Using a two-year difference between ability, as measured by IQ testing and academic achievement scores, 36 percent of adjudicated adolescents were classified as learning disabled, as were 16 percent of controls. Nine percent of learning disabled juveniles versus four percent of controls were found to have been convicted of some crime. The causal role of LD was supported in delinquency even after controlling for socioeconomic status, family intactness, and ethnicity. The positive relationship between adolescent CD and LD is likely to exist, but studies remain to be carried out. This is an important gap in the adolescent CD literature and requires further research.

How do adolescents with LD and ADHD do in CD treatment? There are currently no published studies that the present authors could locate. An unpublished study conducted by one of the authors (Ralph 1988) of 108 adolescents who had completed a six-week inpatient CD program provides some information. All adolescents completing the program in a one-year period were followed up, and parent interviews were used. Parents were asked if their adolescent had ever been diagnosed as ADHD or if they had qualified for special education and received resource help or had been in a special learning handicapped class. Thirteen percent of the sample had a childhood diagnosis of ADHD, and 26 percent had a history of special education placement. Outcome measures were the Delinquency Scale, the CBCL mentioned above, and the percent of time in the past month parents believed the adolescent was using any alcohol or other drugs. While a childhood history of ADHD did not significantly distinguish the adolescents on any measure, a history of special education placement did ($p < .05$). Using a general linear model with age, sex, and time discharged as covariates, those with a special education placement had an average of 12 percent of drug use, while those without such a history had an average of one percent. Likewise, using parent ratings, those with a special education history were significantly higher on the Delinquency Scale. Assumptions of normality were not fulfilled with one of the outcome variables (i.e., percent of use in the past month) and should be interpreted with caution.

The Clinical Management of Chemical Dependency, Learning Disabilities, and Attention Deficit Disorder in Adolescents

Any adolescent CD program, inpatient or outpatient, must deal with motivating and structuring the family to support treatment, creating a prosocial peer culture, and providing sobriety-oriented patient/parent education. These aspects must foster a "conversion experience" and a change from an adolescent identity of being chemically dependent to a sobriety-oriented identity. Treatment of the chemically dependent adolescent requires special people and special programs, and is more challenging than adult treatment.

Adolescents with LD and ADHD require special attention in CD treatment. It is important to appreciate life experiences common to these conditions. These adolescents often have had years of adverse interactions with the school system, where they frequently experienced persistent frustrations. Staff at structured inpatient or outpatient programs often are the recipients of "institutional transferences" that make the development of trust and a treatment alliance more difficult. In an article titled "Learning Disabilities in the Junior High School: Creating the Six-Hour Emotionally Disturbed Adolescent?", Knoff (1983) suggested that the learning disabled adolescent develops expectations of constant academic or social failure, avoids stressful situations, and adopts disruptive behaviors in the school setting to cope with the threats to self-esteem, but can enjoy success in community and family activities.

The ADHD adolescent's experience in school is often similar, but there may be a history of greater family conflict centering around oppositional and defiant behavior. The ADHD adolescent has often had a persistent history of negative and punitive feedback from parents, teachers, and peers regarding his or her behavior, and has developed coping styles for dealing with this chronic pattern of interaction (Barkley 1980). The effects of this disorder on self-esteem, as the study by Waddell (1984) indicated, can be significant.

Conceptualizing the effects of these disorders on the adolescent's capacity to cooperate with treatment is central. Psychological diagnoses are useful ways of conceptualizing important aspects of psychological functioning that should make a significant difference in treatment. The fact that the adolescent had some difficulty understanding and responding to oral or written material as well as psychotherapeutic interventions takes on a new gestalt when ADHD or an LD is identified. These youngsters have a neurologically based attention disorder or information processing disorder that is interfering with their capacity to cooperate with treatment, and is not just oppositional behavior. Special care needs to be taken in designing therapeutic interventions with these youngsters, such as having 12-Step information and homework for the learning disabled adolescent on tape cassettes. It is important to

percent had significant difficulties in impulsivity and social/emotional functioning, and 10 percent had serious antisocial and psychiatric disturbances.

Using a *DSM-II* (American Psychiatric Association 1968) diagnosis of hyperkinetic syndrome, Waddell (1984) studied 30 hyperactive adolescents who had been diagnosed as hyperactive as children and 30 matched controls on self-administered personality tests. They found that the hyperactive group continued to experience self-reported distractibility and impulsivity, and described themselves as more defensive, less confident, and more socially immature than peers. Results from a clinical interview indicated that the hyperactive subjects were more asocial, had lower achievement aspirations, had fewer friends, were more defensive in interview procedures, and were more likely to spontaneously relate negative-aspect self-statements (e.g., "I am not smart or friendly.").

Lambert (1988) described the results of a prospective study of hyperactive children at adolescence that was innovative in that it contained untreated hyperactive children. Hyperactive adolescents more likely attended special schools, did not finish high school, failed to go on to college, dropped out of school, ran away, lived in foster or residential settings, and were on parole. Generalizations are difficult to make, as mentioned above, because of different study methods and diagnostic criteria, but it appears that a childhood diagnosis of hyperactivity places the chemically dependent adolescent at risk for a variety of adverse life outcomes.

The number of studies regarding the persistence of LD into adolescence are far fewer than those with ADD or ADHD, and reflect the relative lack of attention paid to the disorder in this age group (Lochman & Ralph 1980). Ackerman, Dykman and Peters (1977) reevaluated 76 percent of a sample of learning disabled boys who they had assessed four years earlier. At the reevaluation (when the mean age was 14) 15 percent of the boys had improved to a normal level of academic functioning. The remainder of the sample still demonstrated significant underachievement in the areas of oral reading, spelling, and arithmetic. A Finnish study by Michelsson, Byring and Bjorkgren (1985) of 26 young adults who were diagnosed as learning disabled earlier in life, showed that these problems still persisted and that the learning disorders had significant impact on occupational choices.

An assumption of the present authors based on Golden's theories (1979) is that both LD and ADHD are neuropsychologically based disorders that constitute an enduring part of the individual's neuropsychological faculties. Using Luria's theories, Golden described three functional units of the brain that develop sequentially. The first unit governs arousal and attention (the reticular activating system and the brain stem); the second unit governs sensory input, interpretation, and integration; and the third governs

judgment, planning, and purposeful action. ADHD has been theorized to be a disorder of the first and/or third functional units of the brain, using Golden's terminology. Likewise, various types of LDs have been described as disorders of the higher levels of the secondary functional unit; that is, essentially a disorder of information processing. While many of these disorders may diminish in some individuals enough not to warrant a diagnosis, they have some aspects that persist. Garfinkel (1986) and Cantwell (1986) reviewed causal factors and cited evidence for a link between ADD in the fathers of children who had an ADD diagnosis, and they cited a biochemical explanation, the monoamine hypothesis. Features of the social environment and other temperamental factors powerfully influence expression of these characteristics. Millich and Loney (1979) reported that in addition to childhood aggression, family environmental variables are significant predictors of adolescent outcome for ADHD children.

Is ADHD or LD a risk factors for adolescent CD? In a Montreal sample, Hechtman and colleagues (1984) compared a clinic group of 75 subjects (male and female, with a mean age of 19) who had been diagnosed as children as hyperactive, and 44 matched controls. They found that there was a trend for ADHD subjects to have greater drug use of any type (75% versus 54% for controls) and that hyperactives were more likely to have had a period of abuse or dependence (particularly with alcohol and marijuana) as well as longer but not more severe hallucinogen use. Hyperactive adolescents were also more likely to have court referrals and more severe property crimes in the past, but not within the past three months. Interestingly, three hyperactives had tried heroin, as compared to no controls.

Gittelman and colleagues (1985) reported a follow-up study of 101 male adolescents (ages 16-23) who had a childhood diagnosis and treatment for *DSM-II* hyperkinetic reaction of childhood. The psychiatric status of this cohort was compared to matched controls: 28 percent of ADDH adolescents had a drug abuse disorder, versus eight percent of those with the childhood diagnosis who were not diagnosed as ADDH at adolescence, versus three percent of controls. Furthermore, they found that 12 percent of ADDH adolescents had an alcohol abuse disorder, versus five percent of those with the childhood diagnosis who were not diagnosed as ADDH at adolescence, versus five percent of controls. Only those with an adolescent diagnosis of ADDH appeared to be at risk for alcohol or other drug abuse. They also found that 48 percent of the ADDH adolescents had a diagnosis of some type of conduct disorder, versus 13 percent of non-ADDH probands, versus eight percent of controls. For reasons not stated in the study, the diagnosis of any specific LD or oppositional disorder was not used. Few other psychiatric diagnoses were found in any group.

Hartsough and Lambert (1987) studied drug abuse by children not from a sample of treated children but from a

likely have had some time to accommodate to the adolescents' academic limitations, and the patient education that is so important and often well received for children with LD is usually not useful for learning disabled adolescents. The family and adolescent have either exhausted interest in remedial therapies or have no interest now. Effort is usually best placed in helping the adolescent to develop competencies in social and occupationally related areas rather than remediation of the learning deficits.

SUMMARY

Diagnosing any other psychiatric condition in adolescents in addition to CD requires a careful, comprehensive assessment. It should be done with some understanding of the usual behavioral characteristics of adolescent CD, which has herein been called ABCD-S. This syndrome typically involves rejection of parental authority, decline in achievement motivation, and increased delinquent, depressive, and impulsive behaviors. It represents a dysfunctional resolution to the primary developmental tasks of adolescence: establishing independence from parental control and dependency, and increased capacity for self-regulation. These behaviors also appear to largely subside with

the cessation of substance abusing behavior.

ADHD and LD are conditions frequently seen in chemically dependent adolescents. They require careful evaluation, and differentiation from other psychiatric conditions. A comprehensive diagnostic assessment that is sensitive to ABCD-S is essential in assessing these disorders. The diagnosis, particularly of ADHD in adolescence, is even more difficult than in childhood. Studies of the persistence of ADHD from childhood to adolescence make generalizations difficult because of different outcomes, different diagnostic criteria, and different attrition rates. However, the literature would support the view that chemically dependent adolescents with a childhood diagnosis of ADHD may have some ADHD characteristics, and a significant number will still have the full syndrome. Many, though not all, will have significant delinquent and psychological outcomes, and a greater risk of out-of-home placement. Those with a childhood and especially an adolescent diagnosis of ADHD are at risk for some types of CD. Similar generalization appears warranted regarding learning disabled adolescents, though fewer studies exist. Adolescents with ADHD or LD require special consideration in treatment and pose special challenges.

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