This study describes the preliminary psychometric characteristics of a new parent-as-respondent assessment tool, the Coolidge Personality and Neuropsychological Inventory for Children (CPNI). The CPNI contains 200 items answered on a 4-point Likert-type scale. The CPNI has a three-fold purpose: (a) to assess the 12 personality disorders according to the criteria on Axis II and Appendix B of the *Diagnostic and Statistical Manual of Mental Disorders*; (b) to assess neuropsychological dysfunction, including Attention-Deficit/Hyperactivity Disorder, Mild Neurocognitive Disorder, executive function deficits, and other related symptoms; and (c) to measure some Axis I diagnoses including Separation Anxiety Disorder, Oppositional Defiant Disorder, depression, and general anxiety, as well as other clinical syndromes. The scale reliabilities and test-retest reliabilities were moderate to high, and construct validity was good, which supports further research with the inventory.

The Coolidge Personality and Neuropsychological Inventory for Children (CPNI)

Preliminary Psychometric Characteristics

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Appropriate therapeutic intervention requires an adequate evaluation of the nature of the problem. In 1990, Coolidge and his colleagues published preliminary reliability and validity studies of a new parent-as-respondent inventory to assess personality disorders and personality disorder features in children and adolescents. The inventory (Coo-

lidge Axis II Inventory for Children; Coolidge, 1988; Coolidge et al., 1990) was based on items created from the criteria on Axis II of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-III-R*; American Psychiatric Association, 1987). The inventory was subsequently expanded to assess neuropsychological behavioral dysfunction and some Axis I disorders and revised to be congruent with the changes in *DSM-IV* (American Psychiatric Association, 1994). The purpose of this article is to describe current psychometric properties of the newest version of the test, now called the Coolidge Personality and Neuropsychological Inventory for Children (CPNI) (Coolidge, 1998).

Personality disorders have been characterized by three general features: (a) early onset (young adulthood or earlier), (b) continuation through adult life, and (c) a pervasive constellation of inflexible and maladaptive behaviors causing significant impairment in social or occupational functioning. According to *DSM-IV*, the onset of personality disorders can be traced to adolescence or early adulthood. *DSM-IV* also states that the personality disorder categories can be applied to adolescents or children, as long as the individual's behavior meets the criteria of being pervasive, persistent, and not likely to be limited to a single developmental stage. Wolff (1993) noted that personality disorder diagnoses are rare in childhood, and she offered two reasons. First, many children with personality disorder features never develop the adult versions of these disorders. *DSM-IV* endorses this same warning. Second, Wolff warns that the diagnosis of personality disorders in childhood may have iatrogenic effects resulting in gloomy, self-fulfilling prophesies by the parents, teachers, and those who interact with the children. However, it is important to point out that a primary reason for the rarity of the diagnosis of personality disorders in childhood is the lack of standardized interviews or assessment measures of personality disorders specifically designed for children or adolescents and specifically designed according to *DSM* criteria.

Despite the lack of *DSM* criteria-aligned measures, there is a growing body of evidence that many personality disorders begin in adolescence or even earlier (e.g., Bernstein, Cohen, Skodol, Bezirganian, & Brook, 1996). A number of theorists (e.g., Millon, 1996; Rutter, 1987) have suggested that temperaments may form the phenotypic basis for adult personality disorders. Research on temperaments (e.g., Chess &

Thomas, 1984) has identified a number of consistent and pervasive sets of behaviors with evidence of a genetic basis including emotionality, sociability, and activity level. Jang, Livesley, Vernon, and Jackson (1996) presented strong evidence for a genetic basis of higher order traits that may be related to personality disorders in a retrospective twin study of adolescence. In spite of her cautious approach to the diagnosis of personality disorders in childhood, Wolff herself presented strong evidence (Wolff & Chick, 1980) that a diagnosis of schizoid personality disorder remains stable in young boys (M age 10 years old) over a 10-year period. Tantam (1988a, 1988b) found that 60 adult psychiatric patients who might either have met the diagnosis of schizoid or schizotypal personality disorder had early childhood patterns of social isolation and eccentricity. Lieberz (1989) also established risk variables for children developing schizoid personality disorders.

Perhaps the greatest evidence for a particular personality disorder diagnosis in childhood lies with the antisocial personality disorder or conduct disorder (CD) in childhood. In classic studies, Robins (1966, 1978) found that 46% of boys with a suspected diagnosis of CD were diagnosed with antisocial personality disorder more than 30 years later. In a 20-year study of Swedish children (10-15 years old), Magnusson (1988) found that two specific traits, hyperactivity and aggressiveness, were excellent predictors of adult criminality. Olweus (1979, 1980) found aggression to be a highly stable characteristic and that the temperament of activity level was also an excellent predictor of later aggressiveness. Huesmann, Eron, Lefkowitz, and Walder (1984), in a 22-year study of children starting at age 8, found that those who were highest on the aggressiveness temperament at age 8 remained aggressive at age 30. Furthermore, they found that aggressiveness in childhood was a good predictor of adult antisocial behavior, including spousal abuse and physical aggression. More recent studies (Babinski, Hartsough, & Lambert, 1999; Biederman, Faraone, Chu, & Wozniak, 1999; Matthys, Cuperus, & Van Engeland, 1999) have noted the strong comorbidity between conduct disorders in childhood and other types of psychopathology including neuropsychological dysfunction.

The general validity of other personality disorder diagnoses in childhood is relatively sparse. Evidence of the validity of the diagnosis of borderline personality disorder in children was presented by Bemporad, Smith, Hanson, and Cicchetti (1982). In an empirical investigation, Verhulst (1984) statistically differentiated among 57 borderline children, 69 neurotic children, and 47 psychotic children. Again, it appears that one of the primary reasons for the sparseness of studies on personality disorders in childhood and adolescence lies not so much in the fears of the iatrogenic effects of labeling, but in a clear lack of instruments and measures that are based on *DSM* criteria. In addition, Angold, Costello, and Erkanli (1999) noted that the interest in comorbidity of psychiatric disorders in children and adolescents has burgeoned in the past decade. Thus, a measure that is not only *DSM* criteria-aligned but also addresses psychological and neuropsychological dysfunction would be highly useful for research and clinical purposes. Furthermore, Spreen (1989) has found that neuropsychological dysfunction in children and adolescents is frequently accompanied by psychological dysfunction as well. Spreen further suggests that their confluence may often be due to a common biological origin and is probably genetic.

This article attempts to summarize the current psychometric properties and diagnostic features of the CPNI, which has a three-fold purpose: (a) to assess the 12 personality disorders on Axis II of *DSM-IV* and in its appendix, (b) to assess neuropsychological behavioral dysfunction and executive function deficits of the frontal lobes, and (c) to measure some Axis I diagnoses of *DSM-IV* as well as other clinical syndromes.

METHOD

GENERAL DESCRIPTION OF THE CPNI

The CPNI contains 200 items answered on a 4-point Likert-type scale ranging from 1 (*strongly false*), 2 (*more false than true*), 3 (*more true than false*), to 4 (*strongly true*). It was designed to be answered by

a parent, guardian, or teacher intimately familiar with the child's behavior. There are two gender forms and a form designed for nonparental adults. A summary of the scales is as follows: a validity scale, 12 personality disorder scales, 7 Axis I disorder scales, 5 neuropsychological disorder scales, 11 neuropsychological dysfunction subscales, 5 scales assessing personality change due to a general medical condition, 3 other clinical/personality scales, 3 hostility scales, and 14 critical items that cover posttraumatic stress reactions, sexual problems, suicidal ideation, drug/alcohol problems, and so on. A complete listing of the individual scales appears in Table 1.

SCALE DESCRIPTIONS AND ITEM DEVELOPMENT

The items for the 12 personality disorder scales were created from the 101 criteria for the 10 personality disorders on Axis II of *DSM-IV*, plus the 2 personality disorders from its Appendix B. Each criterion of the 101 is represented by at least one item on the CPNI. Additional items were also added to some scales in cases where a single criterion contained more than one psychological symptom. To control for response bias, seven of the items on the personality disorder scales are scored in the reverse. None of the items of the personality disorder scales overlap, with the exception of one item shared by the Schizoid and Schizotypal Personality Disorder scales, because they share a common criterion in the *DSM-IV*. It should also be noted that the CD scale has arbitrarily been included as a childhood personality disorder in the CPNI, although *DSM-IV* lists CD as an Axis I disorder. There are two reasons: First, there is strong evidence that CD and antisocial personality disorder are intimately related. The *DSM-IV* requires evidence of CD for antisocial personality disorder to be diagnosed. Second, according to *DSM-IV*, the antisocial personality disorder diagnosis is the only personality disorder that cannot be given to individuals younger than age 18. The latter criterion thus precludes an Axis II diagnosis with regard to these behaviors. For these reasons, CD was included as an Axis II disorder. In addition, a recent childhood twin study (Coolidge, Thede, & Jang, 2001) found CD to be highly heritable (61%) and well within the range of heritability (50-81%) for Axis II personality disorders.

TABLE 1
Coolidge Personality and Neuropsychological Inventory for Children (CPNI) Scale Descriptions,
Number of Items, Scale Reliability, Test-Retest Reliability, and Scale Sum Means and Standard Deviations (SDs)

Category	Scale Name	# of Items	Scale Reliability	Test-Retest Reliability	Scale Sum Mean (SD)
Validity	Tendency to deny pathology	191	—	—	288.7 (52.8)
Personality disorder scales	Avoidant personality disorder	7	.81	.82	11.0 (3.4)
	Borderline personality disorder	9	.62	.67	5.3 (3.5)
	Conduct disorder	15	.61	.87	18.6 (3.9)
	Dependent personality disorder	8	.63	.84	13.0 (3.2)
	Depressive personality disorder	7	.71	.78	12.5 (3.4)
	Histrionic personality disorder	8	.74	.91	13.0 (3.5)
	Narcissistic personality disorder	9	.80	.81	14.3 (4.1)
	Obsessive-compulsive personality disorder	8	.56	.80	14.6 (3.3)
	Paranoid personality disorder	7	.63	.85	11.5 (2.9)
	Passive-aggressive personality disorder	7	.74	.81	11.9 (3.4)
	Schizoid personality disorder	7	.40	.61	11.4 (2.5)
	Schizotypal personality disorder	10	.72	.80	12.7 (2.9)
Axis I scales	General anxiety disorder	12	.82	.91	18.6 (4.9)
	Major depressive disorder	14	.81	.89	21.7 (5.1)
	Separation anxiety disorder	8	.83	.93	11.1 (3.6)
	Oppositional defiant disorder	8	.84	.67	14.2 (4.4)
	Gender identity disorder	6	.71	.78	7.1 (1.9)

(continued)

TABLE 1 Continued

Category	Scale Name	# of Items	Scale Reliability	Test-Retest Reliability	Scale Sum Mean (SD)
Eating disorder scales	Anorexia nervosa	4	.36	.53	5.5 (1.7)
	Bulimia nervosa	6	.61	.93	7.0 (1.6)
Neuropsychological scales	AD/HD	18	.91	.83	32.0 (9.2)
	AD/HD inattention subscale	9	.90	.86	17.3 (5.6)
	AD/HD hyperimpulsive subscale	9	.85	.80	14.7 (4.8)
	Mild neurocognitive disorder	16	.89	.77	24.5 (6.9)
	Postconcussional disorder	17	.84	.78	27.2 (6.5)
	Executive functions deficits	8	.86	.81	14.7 (4.7)
	General neuropsychological dysfunction	38	.92	.83	56.5 (13.4)
Neuropsychological subscales	Neurosomatic	6	.59	.60	7.9 (2.0)
	Learning problems	4	.77	.84	5.7 (2.1)
	Memory difficulties	2	.79	.85	3.6 (1.5)
	Language problems	5	.74	.69	6.4 (1.9)
	Perceptual-motor dysfunction	4	.57	.56	4.9 (1.4)
	Subcortical	3	.38	.46	3.4 (0.9)
	Inattention (same as AD/HD inattention subscale)				
	Hyperactivity	6	.80	.82	9.8 (3.5)
	Impulsivity	3	.70	.66	5.0 (1.8)
	Delayed maturation	5	.54	.81	6.0 (1.6)
	Emotional changes	10	.81	.86	16.4 (4.5)

Personality change due to a medical condition				
Emotional lability	3	.55	.80	5.1 (1.8)
Disinhibition	3	.69	.60	6.7 (2.3)
Aggression	4	.53	.65	8.1 (2.3)
Apathy	5	.63	.76	7.0 (1.9)
Paranoia	3	.55	.86	4.1 (1.4)
Other clinical scales				
Psychotic thinking	9	.78	.56	11.4 (3.0)
Emotional coldness	4	.59	.70	5.8 (1.7)
Sleep disturbances	7	.60	.93	9.3 (2.5)
Hostility scales				
Dangerousness	16	.82	.63	24.7 (5.6)
Conduct disorder-aggressive subscales	7	.61	.42	8.9 (1.9)
Conduct disorder-delinquent subscales	8	.71	.52	9.6 (2.5)
Critical items				
Posttraumatic stress disorder	2			
Antisocial triumvirate	3			
Sexual problems	3			
Pica	1			
Worthlessness	1			
Stuttering	1			
Nightmares	1			
Suicidal ideation	1			
Alcohol/drug problems	1			

Most of the seven Axis I disorder scales and three of the five neuropsychological disorder scales were also created from the criteria listed in *DSM-IV.* The remaining scales (e.g., General Neuropsychological Dysfunction Scale and the 11 neuropsychological dysfunction subscales, and the Executive Function [EF] Deficits Scale) were created on a theoretical basis from the research literature relevant to those disorders (Pennington & Ozonoff, 1996). It is also important to note that recent studies support the validity of parental reports of executive dysfunction (e.g., Gioia, Isquith, Guy, & Pratt, 1999; Silver, Benton, Goulden, Molho, & Clark, 1999).

NORMATIVE SAMPLE AND PROCEDURES

The parents of the children in the normative sample were recruited through college students (who received extra credit) in introductory psychology classes. These students were asked to find parents of purportedly "normal" children ages 5 to 17 years old. To reduce test bias, the CPNI was labeled Behavior Inventory for Children during the normative study.

An attempt was made to gather 15 boys and 15 girls at each age from 5 to 17 years old. The parents of these children had a median age of 40, ranging from 22 to 56 years old. Seventy-seven percent of the respondents were the mothers of the children, whereas fathers consisted of 16% of the respondents. Stepparents or legal guardians of the children made up the other 7% of the respondents. The median number of years of education of the respondents was 14 years, with a range from 6th grade to advanced university degrees. Seventy-one percent of the respondents were married or cohabiting, 14% were divorced or separated from their spouses, 2% were widowed, and the remaining respondents were single or did not report their marital status. For the parents who were married, their median length of marriage was 13 years, with a range of 1 to 34 years.

The final sample of 329 children consisted of 169 boys and 160 girls. Their median age was 11 years, with a range of 5 to 17 years. Their median education level in years was 5, with a range of 0 to 13 years. Seventy-one percent of the children were Caucasian, 9% were Hispanic, 7% were African American, 1% was Asian, 1% was Ameri-

can Indian, and 11% of the respondents reported the children's ethnicity as "other."

The respondents also completed an elaborate demographic questionnaire about their children's childhood illnesses, hospitalizations, and psychological or behavioral problems. It was ascertained that the children in the final normative sample were normal with respect to being restricted to typical childhood illnesses and having no medical or psychological conditions that might have a clear detrimental effect on the child's psychological or neuropsychological functioning.

RESULTS

Table 1 presents a summary of the individual scales, items, raw scale sums and standard deviations, scale reliabilities, and test-retest reliabilities.

SCALE RELIABILITIES

Personality disorder scale reliabilities. The median scale reliability (Cronbach's alpha) for the 12 personality disorder scales was .67, ranging from .55 for the Schizoid scale to .81 for the Avoidant Personality Disorder scale. Because 10 of the 12 scales had reliability coefficients of .61 or greater, the low reliability of the Schizoid scale required special attention. A lower number of items on a scale does yield a lower Cronbach's coefficient of reliability (α). Five of the 12 personality disorder scales have only seven items (as per *DSM-IV* criteria) including the Schizoid scale, but the other four scales have a median reliability of .73. Cronbach (1951) also noted that scales with higher first factor concentrations yield higher reliability coefficients. A factor analysis of the 12 scales showed that the Schizoid scale had the lowest percentage of variance for a first factor concentration of any of the five scales and the highest percentage of variance for the second factor.

Axis I scale reliabilities. The median Axis I scale reliability was .82, ranging from .71 for the Gender Identity Disorder scale to .84 for the Oppositional Defiant Disorder (ODD) scale.

Neuropsychological scale and subscale reliabilities. The median scale reliability was .89 for the five neuropsychological scales, ranging from .84 for the Postconcussional Disorder scale to .92 for the General Neuropsychological Dysfunction scale. The median scale reliability for the 11 neuropsychological subscales was .74, ranging from .38 for the Subcortical subscale (3 items) to .90 for the Inattention subscale (9 items).

Personality change due to a general medical condition, other clinical scales, and hostility scale reliabilities. The median scale reliability for these 11 scales was .61, ranging from .53 on the Aggression subscale (4 items) to .82 on the Dangerousness subscale (16 items).

TEST-RETEST RELIABILITIES

The test-retest reliabilities were performed on a randomly selected sample of 67 parents from the original normative group. The median test-retest interval was 4 weeks, ranging from 1 week to 7 weeks.

Personality disorder scale test-retest reliabilities. The median test-retest reliability (Pearson's product-moment correlation coefficient) for the 12 personality disorder scales was .81, ranging from .61 for the Schizoid Personality Disorder scale to .91 for the Histrionic Personality Disorder scale.

Axis I scale test-retest reliabilities. The median Axis I scale's test-retest reliability was .89, ranging from .67 for the ODD scale to .93 for the Separation Anxiety Disorder scale.

Neuropsychological scale and subscale test-retest reliabilities. The median test-retest reliability was .81 for the five neuropsychological scales, ranging from .77 for the Mild Neurocognitive Disorder scale to .83 for the AD/HD scale and the General Neuropsychological Dysfunction scale. The median test-retest reliability for the 11 neuropsychological subscales was .81, ranging from .46 for the Subcortical subscale (3 items) to .86 for the Emotional Changes subscale.

Personality change due to a general medical condition, other clinical scales, and hostility scale test-retest reliabilities. The median test-retest reliability for these 11 scales was .65, ranging from .42 for the CD-Aggressive Subtype scale to .93 for the Sleep Disturbances subscale.

CONSTRUCT VALIDITY

Factor analysis of the personality disorder scales. The 101 items from the 12 personality disorder scales were factor analyzed together using a principal components analysis with varimax rotation. Thirty components were extracted after rotation. Only four factors accounted for more than 3% of the variance, and only the first factor accounted for more than 5% of the variance (6%). An examination of the rotated intercorrelation matrix revealed that the first factor had 20 items with factor loadings greater than .30. The factor appeared to be a measure of narcissism with cruel, argumentative, jealous, pouting, destructive, and taking-advantage-of-others components. The second factor had seven items with factor loadings of .30 or greater and accounted for 5% of the total variance. The factor appeared to be a measure of low self-esteem, coupled with avoidant behaviors, concerns with evaluation by others, and excessive social worries. The third factor had 13 items with factor loadings of .30 or greater and accounted for 4% of the total variance. This factor appeared to be a measure of instability of mood, quickness to anger, rigidity, resentment, and unhappiness. The fourth factor had nine items with factor loadings of .30 or greater and accounted for 3% of the total variance. This factor appeared to be a measure of schizoid behavior with a lack of emotion, no desire for friends, and avoidance of close contacts with others.

Factor analysis of the individual personality disorder scales. A principal components factor analysis with varimax rotation (where possible) was performed on each of the 12 scales' items separately. Three of the scales had a single-factor solution: Avoidant, Histrionic, and Passive-Aggressive. Four scales had two-factor solutions: Dependent, Narcissistic, Paranoid, and Depressive. Four scales had a

three-factor solution: Borderline, Obsessive-Compulsive, Schizotypal, and Schizoid. One scale had a four-factor solution: CD.

Factor analysis of the general neuropsychological dysfunction scale and subscales. The 54 items from the General Neuropsychological Dysfunction scale and the neuropsychological subscales (with the exception of the Emotional Changes subscale) were subjected to a principal components factor analysis with varimax rotation. Only four factors individually accounted for greater than 4% of the variance, although 13 factors were extracted. A first factor accounted for 16% of the variance and had factor loadings greater than .30 for 22 of the 54 items (41% of the total items). All eight items from the EF Deficits scale loaded heavily on Factor 1, as well as all nine items from the Inattention subscale. The second factor accounted for 8% of the total variance. All six items from the Hyperactivity subscale loaded heavily on Factor 2, as well as the three items from the Impulsivity subscale, and 12 items overall had loadings of .30 or greater with Factor 2. Factor 3 accounted for 7% of the variance, and 11 items loaded at .30 or greater. Factor 3's strongest loadings came from items dealing with difficulties in learning and thinking. Factor 4 accounted for 4% of the total variance, and four items loaded at .30 or greater. It appeared to be a measure of delayed maturation, as the three items concerning delayed potty training, talking, and walking all loaded at .71 or greater. The remaining nine factors, accounting for 4% to 2% of the variance each, appeared to be measures of perceptual motor problems, neurosomatic complaints, language difficulties, poor coordination, tics, pica, enuresis, encopresis, physical illness, and fatigability.

DISCUSSION

These results appear to provide preliminary support for continued research of the CPNI in the assessment of psychopathology and neuropsychological dysfunction in children and adolescents. The stability of the scales over time and the moderate to high internal consistency of most of the scales attests to the general reliability of the CPNI.

It appears that the lower internal scale reliabilities of the Schizoid scale (.55) may, at least in part, be due to its factor structure.

There is more than sufficient empirical evidence to demonstrate that many personality disorders have their genesis in childhood or adolescence, and recent research (Coolidge et al., 2001; Torgersen et al., 2000) suggests that all *DSM-IV* Axis II personality disorders are heritable. Undoubtedly, the onset of the diagnosable symptoms of a personality disorder varies from individual to individual and varies across the disorders themselves. Given the pervasive and chronic nature of the inflexible and maladaptive behaviors associated with personality disorders, it may behoove clinicians to identify the earliest features of these disorders in order to reduce the magnitude and chronicity of later adult pathology. Indeed, early intervention and intensive behavior modification strategies may result in a significant therapeutic effect on personality disorder-prone children.

One of the major difficulties that will be faced in the validation of the CPNI is the attempt to establish discriminant and concurrent validity with other measures or with clinicians' judgments. Because it has often been shown that the interrater reliability of adult personality disorder diagnoses is modest or even poor (Widiger, 1993), it becomes a difficult task to provide such validity evidence. The lack of belief by some clinicians in the presence of some personality disorders in childhood, coupled with a lack of measures to assess personality disorders in childhood, also hampers validity efforts.

The present normative sample ($N = 329$) was obtained primarily through convenience, and work is currently under way to increase the heterogeneity of the sample and sample size. There is also a potential limitation using parent reports in the evaluation of childhood disorders, and current work compares the validity of single-parent ratings to two-parent ratings and teacher ratings. In this study, some experimental control was provided by determining and eliminating any children's protocols whose parents had noted through demographic information that the children had been previously hospitalized by medical or psychological conditions that might have impacted their testing. Children's protocols were specifically eliminated when parents had indicated a closed head injury or other brain trauma, or if the children had been diagnosed with a developmental disorder, learning disabil-

ity, or AD/HD. Further studies should certainly be conducted to determine whether children who are diagnosed as personality disordered, compared to a normative sample, remain so after an extended period. Another important empirical question is to determine the extent to which early intervention affects the pervasiveness, chronicity, or ultimate outcome of adult personality disorders.

In summary, the initial psychometric characteristics of the CPNI are encouraging. Its congruence with *DSM-IV* criteria and its integration of the assessment psychopathology and neuropsychological dysfunction may make it a comprehensive and efficient assessment tool. Further research on the CPNI with clinical samples and research into the effects of age, gender, and ethnicity is currently under way.

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